

THE

ELEMENTS OF PSYCHOLOGY

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PREFACE.

THIS book has grown out of lectures delivered to my pupils. It covers the ground included in the B.A. Syllabus and aims at explaining psychical phenomena consistently with the claims of the different sides of our nature. It is not pledged to defend this position or that; it merely tries to discover truths about the mind by a careful and impartial study of facts. In this search after truth it has, no doubt, become necessary to examine the views that diverge from it and thus threaten to weaken the foundations of our moral and religious life. In this 'scientific' age, it has become the fashion to look upon our mental life as a mere panorama open to our view, but without any substantial basis or originating principle. It has been my endeavour throughout to show that such a conception of mind as simply an aggregate of psychical phenomena is not justified by facts. On the other hand, the operation of a mental principle in the different phases of our conscious life is too patent a fact to be overlooked by an unprejudiced mind.

In the treatment of the subject I have not simply stated the current views on important topics, but have ventured to suggest what have seemed to me to be warranted by the facts of consciousness. My obligations to other writers are

very great, and I have generally mentioned in proper places the names of the writers quoted or consulted, so far as I have been able to remember them. For the physiological account I am specially indebted to Carpenter, Huxley, Ladd, Bain, and certain other authors

My thanks are due to my pupils who have kindly supplied me with copies of my lectures. The questions in the exercises have generally been taken from papers set at the University Examinations. The arrangement of topics is indicated in section 10 of Chapter I

CALCUTTA,
June 28, 1915 }

A C MITRA

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THE ELEMENTS OF PSYCHOLOGY

BOOK I.

INTRODUCTION

CHAPTER I.

DEFINITION AND SCOPE OF PSYCHOLOGY.

§ 1. What is Psychology? Psychology, as the etymology of the word (Gr. *psyche*, soul, and *logos*, discourse or science) suggests, implies the accurate and systematic exposition of the processes of what we call the mind, soul, ego, or self. As every science has a distinct province of its own, so Psychology has its own sphere, viz., the study and explanation of the phenomena of the mind. We have to unfold in it the wheel-work of our mental constitution and to show how these wheels move. The character of these wheels, how they revolve, and their mutual relation should all be determined to throw an adequate light on the mechanism of the mind.* And the special advantage of the psycholo-

Psychology
explains
mental
processes.

It unfolds the
mental
constitution
and reveals
the laws
governing
mental
phenomena,
which are

* The student should not infer from this illustration that the relation among the several faculties or exercises of the mind is merely a mechanical or external one, like the relation among the wheels of a clock. The illustration is intended to bring home to his mind the fact that Psychology aims at explaining the constitution and processes of the mind. But the relation among the different exercises or functions of the mind is an organic or vital one, like the relation among the different organs of our physical frame. The mental faculties, like the physical organs, are so intimately connected with one another that an exercise of one involves more or less an exercise of the rest, while one vivifying principle pervades the whole, uniting or closely connecting its several parts. Nay, the mind is a unity in a still higher sense than the organism, since the different faculties are but different exercises of one and the same mind. (*Vide Chap. V, § 2*)

most
intimately
known

Like other
sciences, it
renders
explicit what
is implicit in
the common
mind and
arrives at
generaliza-
tions by wide
and careful
observation

It thus
indicates the
elements,
laws, and
evolution of
the mind

(1) Mental
phenomena
are most
intimately
known, while
outer facts can
be known
only by refer-
ence to them.

gist is that the materials of his science are in the closest touch with him in fact, he can never be sure of anything else unless he be sure in the first instance of the facts of his own consciousness, the processes of his own mind. In ordinary life, we are implicitly aware of these facts and processes, but it is the business of Psychology to bring them before the reflective gaze and discover their contents, relations, and significance. The first-hand knowledge which a psychologist thus gains of the materials of his science he next tries to generalize by a careful study of other minds and connected circumstances. He thus aims at unravelling the mental constitution by indicating its elements, laws, and course of development.

§ 2. Peculiarities of Psychology as a Science (1) The chief peculiarity of Psychology as a Science is implied in what has been mentioned above. We have said that mental processes or psychoses (as they have been called) are, in the first instance, most intimately known to the person in whom they take place. Other things can be known only as connected with these processes. It is not meant by this that mental phenomena are known before the objects which give rise to them. They always condition each other, but the estimate of an object, an exciting cause, is always relative to the mental apprehension, the subjective effect. And this peculiarity at once draws a line between Psychology and the Natural Sciences. The Natural Sciences survey but the outer face of things and can never have an access into their inner nature as out of all

relation to the mind. The active principle at work in what we call the external world is known to us only through its expression as understood by the mind. But the essence of mental phenomena, which constitute the subject-matter of Psychology, is found in their vitality, in their being but aspects of mental energy immediately present in consciousness. To divorce a psychical fact from its originating principle is to strike it dead. We can never view, for example, perception, reflection, sympathy, or deliberation apart from the mind of which they are but different moods, though in the case of the Natural Sciences we do consider light or heat, plants or planets as they appear to us, without any necessary reference to their inner being or nature. We can never identify ourselves with the outer energy which speaks to us, through this or that sense, as light or heat, sound or movement, but personal identification is an essential condition of the very presence of a fact of our conscious life. There can be no meaning in joy or grief, perception or deliberation without reference to the mind experiencing them ; they are psychical processes, whose presence can be determined only in the operation of the mind as directly revealed in consciousness.

(2) From the above peculiarity we can gather another, *viz.*, that Psychology is essentially individualistic in character. "The stand-point of Psychology," observes Dr. Ward, "is individualistic ; by whatever methods, from whatever sources its facts are ascertained, they must—to have a psychological import—be regarded as having place in, or as being

Mental phenomena are but moods of the conscious mind.

(2) Psychology is essentially individualistic

part of, some one's consciousness" (*Encyclo Brit.*, XX, p 38) ; While the materials of the Natural Sciences are objects of common observation and estimate, the materials of Psychology are primarily open only to the view of the observer himself Even when the psychologist studies the minds of others, he does so merely by reference to the processes of his own mind. Psychology is thus a positive science, concerned with the exposition of mental phenomena as they are presented to an individual mind It aims simply at the determination of their character and conditions without inquiring into their validity, which would involve an appeal to a standard generally recognised or adopted. No doubt, the conclusions of Psychology are ordinarily "expected to be valid for all minds , but such an expectation is based on the community of human nature and not on the common experience of the same object To the psychologist prejudices and passions, illusions /and delusions, fancies and vagaries are as much objects of careful examination as the most coherent and elevated notions or beliefs

(3) The scope
of Psychology
is very wide

(3) Another special feature of Psychology is that its sphere of inquiry is, in a sense, very wide or comprehensive All objects so far as they contribute to the knowledge of mind thus come within the range of its study. Of course, it does not inquire into the special character of the objects themselves , but it examines them so far as they illustrate mental phenomena occasioned by them. The whole choir of heaven and furniture of earth, as apprehended by us, may, accordingly, furnish materials

for psychological investigation. Though, therefore, like the other Sciences, Psychology has a special subject-matter of its own in the form of mental phenomena, yet it occupies a unique place, since the range of such phenomena is practically unlimited. It may be said that all objects are objects only by reference to their mental effects ; and these effects are studied in Psychology.

(4) From the preceding remarks it is clear that (a) if, in the case of Natural Sciences, the objective attitude is prominent, in the case of Psychology the subjective attitude is predominant. Mental phenomena can never be presented simply in the fashion of objects, as we find in the case of the materials of the Natural Sciences. Thus, the mere delineation of traits from the stand-point of an external observer, which constitutes the cardinal feature of these sciences, sinks into the background in Psychology, which aims at exhibiting the conditions and characteristics as realized in personal activity. (b) And, from this difference in attitude, we find also a difference in their scope or significance. While the Natural Sciences restrict their inquiries to the phenomenal aspects of things, Psychology cannot altogether ignore a knowledge of the mental principle underlying the different psychical processes. The distinction, therefore, between *Empirical Psychology*, as treating simply of the mental phenomena presented in experience, and *Rational Psychology*, as inquiring into the real nature of the mind or soul, is not so sharp or thorough-going as is usually supposed. In explaining psychical states we are driven

(4) In Psychology the subjective attitude is prominent, while in the Natural Sciences, the objective.

Thus, Psychology cannot be wholly phenomenalistic.

to view them as but varying expressions of an active principle, which is essentially discriminative and synthetic in character. We have thus an immediate knowledge of a psychical energy vitally connected with its diverse manifestations in consciousness, which constitute the subject-matter of Psychology. We should remember, however, that this does not mean that an inquiry into the real character of mind is essential to the solution of psychological problems. Whether it is material or spiritual, its existence as an active subject of all experience is a fundamental fact underlying all psychological inquiry.

✓ § 3. **Definition of Psychology** Psychology as the science of mind is concerned with the description, classification, and explanation of its varying moods in their mutual connection and bearing. As the essence of our mental life consists in consciousness, its interpretation is the main business of Psychology. But psychical processes are very closely connected with the nervous, and both of them are roused into activity by natural and social surroundings. Hence, adequately to explain the mental phenomena, the psychologist is driven to refer also to the connected nervous processes and their exciting conditions. In a wide sense, then, Psychology aims at giving an accurate and systematic account of all psychoses, with their determining conditions, and tries to indicate the course of mental evolution.

It has been urged by some (1) that the reference to 'mind' in the definition involves the gratuitous assumption of a mental principle, not justified by

psychological research. And it has also been contended (2) that definition by reference to 'consciousness' can neither be free from objection, since there are many psychical phenomena outside the range of consciousness proper (*e.g.*, the contents of memory), which come within the province of Psychology. But it may be said in reply that (1) though an inquiry into the real character of 'mind' falls outside the scope of Psychology, yet the assumption of mental unity holding together the diverse facts of our psychical experience runs through the entire psychological inquiry. We have seen that mental life is essentially a stream, from which we can never isolate its ripples or waves that are present to our view. (2) And, with regard to 'consciousness', it may be mentioned that it includes various degrees or shades from the most clear and distinct experiences to those that are very vague and indefinite (*Vide* Chap. IV, § 9) What is, therefore, excluded altogether from 'consciousness' and cannot be recovered by any means is practically outside mind and thus outside Psychology. Even when it indicates the physical or physiological conditions of our mental life, it does so only by reference to the connected psychical processes revealed in consciousness, without which the conditions would be unmeaning. In fact, consciousness is but the expression of the mental energy or activity, which ranges from vague potentiality to distinct actuality. And Psychology examines the different expressions with a view to determine the way in which the energy works.

Psychology necessarily involves a reference to 'mind' and 'consciousness', without which psychical phenomena are unintelligible

Consciousness is but the expression of psychical energy, which manifests itself in various grades and forms.

Psychology
aims at
explaining all
mental
phenomena

§ 4 Scope of Psychology Psychology has for its province the examination and explanation of all mental phenomena—intellectual, emotional, and volitional. The advocates of Empirical Psychology (e.g., Mill, Bain, Spencer, Sully, Wundt) contend that Psychology enquires merely into psychoses or states of consciousness, leaving the investigation of the real nature of mind to Philosophy. As Sully remarks, Psychology implies, no doubt, the idea of a mental unity connecting the diverse psychical phenomena, but the precise character of this unity is investigated in Metaphysics or Philosophy. This view of Psychology leads the psychologist to isolate mental processes from their context in the mental life and to treat them as “objects which exist in consciousness as physical objects exist in space” (*Mind*, Old Series, IX, p. 434). Psychology is thus ranked with the natural or objective sciences, treating of a definite subject-matter which has, as it were, an existence *per se*. But Prof. Adamson very rightly points out that such a conception of Psychology is not sound. Since, in actual experience, mental processes or events are never isolated from their context in mental life, to treat them as though they were isolated inevitably results in depriving them of their peculiar and distinctive character. Mental facts, as such, can never be presented simply in the fashion of objects; they are always facts of *mind*. And this qualification, which distinguishes them from every other class of facts, is exactly what prevents their appearance as mere objects (*Vide* Chapter IV, § 5.) The reference of psychical phenomena to a

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Hence mental
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always facts
of mind

world or to a mind is apparently due to a mental process · the 'objective reference' is the outcome of psychical development ; and the import or validity of that reference cannot be determined apart from a consideration of the ways in which it has been acquired and has gradually attained to definiteness and completeness in the mental life. The nature of the reality manifested in mature experience cannot be independent of the process in and through which the manifestation is brought about. "A field of enquiry of incomparably wider scope and significance than is usually hinted at in psychological text-books is thus opened out for the psychologist, and the close and intimate bearing of his researches upon ultimate philosophical questions becomes apparent." Psychology, accordingly, may be said to have for its data (1) the phenomena of consciousness as primary or immediate experiences and (2) the process by which, from the characteristics of such immediate experiences, there is developed the distinction between 'subject' or the knowing mind and 'object' or the thing known. Psychology traces how the distinction is arrived at, while Philosophy examines the worth or validity of conceptions based upon the distinction. (*Vide Mind*, New Series, Vol. XIII, pp. 77-78.)

They thus involve a reference to mental development.

Psychology, accordingly, studies (1) the facts of consciousness and (2) the process by which the distinction between subject and object is developed

From the preceding remarks it is apparent that though the direct object of Psychology is to examine the psychical processes as they are revealed in consciousness, yet, to explain them adequately, it is constrained to study also the way in which the mind develops and the connected phys-

To explain the facts of consciousness Psychology indicates their several conditions—psychical physiological,

social, and physical.

Psychology studies, therefore, the different types, grades, forms, and phases of mental life

Different forms of psychological inquiry have appropriated to themselves distinct names

(1) Analytical Psychology, which aims at resolving complex mental phenomena into their elements

It is based on introspection and the logical methods of analysis and synthesis

It includes
Psychology

iological, social, and physical conditions. It examines likewise the extreme, abnormal, and analogous forms of mental constitution, as illustrated in infancy, idiocy, genius, lunacy, criminality, delusion, dream, hypnosis, and animal life. We find, accordingly, that the range of Psychology has recently been widened very much covering several departments. Let us notice them separately in a distinct section.

§ 5. Branches of Psychology. The elucidation of mental facts is effected by Psychology, as mentioned above, in various forms of inquiry, which have appropriated to themselves distinct names. The main branches of inquiry thus aiming at psychological explanation are —

(1) *Analytical Psychology*. It proceeds by a careful observation of psychical processes and products, either in ourselves or others, and an attempt at explaining them by analytical resolution. We thus examine percepts or concepts, emotions or volitions, language or thought and try to explain them by reference to their elements and laws discovered by psychological analysis. In many cases, to explain psychical phenomena, we are led to inquire into the earlier stages of mental history, which helps their elucidation. This mode of psychological investigation is ultimately based on introspection or self-observation and the logical methods of analysis and synthesis. (*Vide* § 7 of this chapter)

Analytic Psychology includes also what is known as *Individual Psychology*. In it we study by the

reflective and analytical methods special or extreme forms of mental activity as illustrated in the peculiar constitution of an individual or individuals. Of course, in Psychology, as a science, we are never interested in the knowledge of an individual mental constitution as such ; but even such knowledge, as indicating the limits and characteristics of mental powers, may be of some use in the scientific study of mind. Thus, the psychology of temperament or of the peculiarities of the senses and the experiences of the blind or deaf mutes, like Laura Bridgman and Helen Keller, throw some light on the working of the normal mind under special circumstances or extraordinary difficulties. (*Vide Chap XVIII, § 5.*)

We should remember that the different branches of Psychology are all, more or less, dependent on Analytic Psychology, without which there can be no correct and adequate knowledge of mental phenomena which they finally try to explain.

(2) *Genetic Psychology.* It rests on the assumption that the proper conception of mind is that it is essentially a product of development or evolution. As in the case of plant or animal life we find that the successive stages are all very closely connected, so that we can never understand the later without taking into account the earlier stages ; so, in the case of mind, we can never properly understand a later experience without reference to the earlier ones which condition it in every way. A student, for example, can follow lectures in a subject only by reason of his attainments, as determined by previous training. Thus, to explain thought we must refer to

and underlies
the different
forms of
psychological
inquiry.

(2) *Genetic
Psychology,*
which traces
the course of
mental
development

and explains
mental
phenomena
by reference
to previous
acquirements.

the prior culture of memory and imagination ; and, to explain these, we should refer to perception. Genetic Psychology, accordingly, tries to explain mental phenomena chiefly by reference to their order of development as closely connected processes of an immanent principle.

✓ It is evident that Genetic and Analytic Psychology are inter-connected. To trace the development of mind, we must know its various processes by reflection and analysis ; and such reflective and analytic study can never be complete without a reference to the course of mental evolution. Genetic Psychology has recently been aided by some special forms of mental research bearing distinct names. These are —

It is aided by

(a) *Child Psychology*, which inquires into the elementary forms of mental life as revealed in the experiences of children,

(b) *Folk Psychology*, which examines the mental characteristics of primitive people,

(c) *Social Psychology*, which studies influence

(a) *Child Psychology*. It is devoted to a careful observation of children with a view to determine the way in which their minds develop from the earliest days of infancy to boyhood or girlhood. It has supplied important data in the shape of comparatively elementary processes of thinking, feeling, and doing.

(b) *Folk Psychology* or *Race Psychology*. It examines the mental characteristics of primitive peoples by reference to their superstitions, practices, and folk-lore. It is based on Anthropology or the science of the entire life of primitive man and is supplemented by Sociology, which explains the constitution and influence of civilized community.

(c) *Social Psychology*. It is intimately connected with Folk Psychology, but its special function is to study the way in which Society works and

thereby influences the individual mind. Man being essentially a social creature, his mental development is determined to a great extent by the influence of the society in which he lives. Thus, the mental development of a child living in a savage community is not exactly the same as that of one born in a civilized society. Social Psychology studies specially Language, Law, Religion, Custom, Industry, and Public opinion, as these are the chief instruments with which any society acts on the individual mind.

(d) *Comparative Psychology*. It studies the mental processes of the various grades of animal existence with a view to trace the course of mental evolution from the simplest form of animal life to the developed mind of man. It thus includes *Animal Psychology* which examines the mental history of lower animals and tries to determine elementary functions and laws by comparing the psychoses of the different forms of animal life.

(3) *Physiological Psychology*. It aims at indicating the physiological or nervous conditions of mental processes. Owing to the intimate connection of Mind and the Nervous System, processes of the one are invariably accompanied by those of the other. (*Vide Chap. II, § 3*) Hence, to adequately explain mental phenomena, their physiological conditions should be indicated. To explain, for example, memory or emotion without the connected nervous process is to give an imperfect and inadequate idea of it. Some advocates of Physiological Psychology go to the extent of maintaining that

of society on
the individual
minds, and

(d) *Comparative Psychology*, which makes a comparative estimate of the various grades of mental life.

(3) *Physiological Psychology*, which aims at determining the physiological or nervous conditions of mental processes

The extreme view that the nervous processes consti-

tute the fundamental reality, of which mind is but a by-product or epiphenomenon, is not justified by facts

(4) *Experimental Psychology*, which aims at determining by experiment the degree and extent of correspondence between psychical processes and their determining conditions.

It studies the quantitative aspect of mind

and includes *Psycho-physics*, which tries to determine numerical correspondence between sensations and their stimuli.

Abnormal
“ “ ,

the physiological process is the fundamental reality and what is called mind is but a by-product or epiphenomenon Consciousness, as Huxley puts it, is like the whistle of a passing train, whose real motive power lies in the steam. This view, however, is not countenanced by facts

(4) *Experimental Psychology* It employs experiment to determine precisely the character and degree of connection between psychical processes and their exciting conditions Thus, it may try to determine the number of objects which we can attend to at a time, or the number of suggestive circumstances which help revival in a particular case, or the character of light stimulus needed to produce a definite optical impression It may be mentioned, however, that the special function of Experimental Psychology is to study the quantitative, as distinguished from the qualitative, aspect of the mind. In fact, before the development of this branch of Psychology, mental phenomena were generally studied only with regard to their qualitative aspects (such as light giving rise to vision, sense-feeling as different from emotion, or memory as distinct from imagination). Now Experimental Psychology is chiefly employed to determine numerical correspondence between such elementary psychical phenomena as sensations and their outward stimuli In this sense, it is used as synonymous with *Psycho-physics*, which at times is extended to cover also *Physiological Psychology*.

(5) *Abnormal Psychology*. It studies mental defects or diseases—such as aphasia, amnesia,

lunacy, idiocy—and inquires into their forms and conditions. It includes also all investigations connected with the abnormal or unusual conditions of mind, such as Delusion, Illusion, Hypnosis, and Dream. Abnormal Psychology, then, includes *Mental Pathology*, which is concerned only with the diseased conditions of the mind.

which examines defective and diseased conditions of mind.

§ 6. Definition of Mind. The term Mind or Ego is used in at least three different senses.

(1) In the *empirical sense*, it means the *psychoses* or mental processes of thinking, feeling, and willing, viewed by themselves and without any reference to a mental substance as Bain says—Mind is “the sum total of subject-experiences”, “the reservoir of ideal ends.” (2) In the *metaphysical sense*, Mind or Ego implies the *entity* or *substance* exercising the powers of thinking, feeling, and willing, but viewed apart from its phenomenal manifestations : it is the soul behind and above its phenomenal expression. (3) In the *philosophical or proper sense*, the Mind or Ego signifies a *concrete unity* of entity and functions—a reality which exercises the mental powers and is the seat of mental phenomena . it is an entity which manifests itself in consciousness through its diverse functions—intellectual, emotional, and volitional.

The term 'Mind' is used in at least three different senses

(1) In the empirical sense, it stands merely for the aggregate psychical phenomena

(2) In the metaphysical sense, it indicates an entity or soul behind such phenomena.

(3) In the philosophical or proper sense, it implies a concrete unity of entity and functions.

In whichever sense ‘Mind’ may be used, it is to be understood by reference to its expression—the mental phenomena. These, however, being elementary, cannot be defined ; but they may be described, and that in three different ways —(1) by using some synonymous expression (*e. g.*, psy-

In whatever sense ‘Mind’ may be taken, it can be understood only by reference to its expression—the psychical

phenomena which, being elementary, admit of description and not of definition
Three forms of description.

Though in literature 'Mind' ordinarily stands for the intellectual side of our psychical existence, yet in psychology it represents all sides of such existence

The Psychological Methods include
(A) the Methods of Observation and (B) the Methods of Exposition
(A) The Methods of Observation are (I) the Subjective and (II) the Objective
(I) The Subjective Method is Introspection or inner observation.

chooses, psychical processes or states, mental phenomena, &c), (2) by enumerating their chief varieties (*e.g.*, knowing, feeling, and willing as constituting mind*), and (3) by setting them in antithesis to their opposite (*e.g.*, mind is non-material, non-extended, &c.).

It may be remarked in this connection that (a) in *Literature* the word 'mind' is generally used for the intellectual, 'heart' for the affectional, 'spirit' for the volitional, and 'soul' for the moral or religious aspect of the Ego (b) In *Psychology* or *Mental Science*, however, all these words indicate the same thing—the Ego. The self is unitary · its different functions—intellectual, emotional, volitional—moral or religious—are but modes of one and the same Mind.

§ 7. The Psychological Methods. These include—

(A) The Methods of Observation Sources of Our Knowledge of Mind

I. *The Subjective or Introspective Method* This method consists in attending to what goes on in one's own mind it is introspection or looking within. The object of observation here is not an external fact, of which we may be conscious, but the mental process or psychosis involved in such knowledge. The states of consciousness or psychical processes, which constitute the proper subject-matter of Psychology, are directly known only

* इच्छा व प्रयत्नसुख खजानान्यात्मनि लिङ्गम् ।

"Desire, aversion, volition, pleasure, pain, and knowledge are the signs of soul" (*Gotama Sutra*, I, 10)

through this method. "Consequently", writes Father Maher, "this faculty of internal observation must be our chief instrument in the study of the mind. To its adjudication must be the first as well as the ultimate appeal in every psychological problem. Mental states can only be apprehended by each man's own consciousness. Their reality consists in their apprehension—their esse is percipi."

(*Psychology*, pp 11-12)

✓ Its Difficulty. To withdraw our attention from the attractive sights and sounds of the external world, with which we are familiar from infancy, and to concentrate our attention on the comparatively (a) insignificant and (b) evanescent, mental processes is always more or less difficult.

✓ Its Excellence. It gives us a direct, and so a correct, knowledge of mental phenomena.

Its Defect. It gives us a knowledge of the individual mind, as distinguished from a general knowledge of mental phenomena essential to science. And, as this method constitutes the foundation of Psychology, its stand-point is sometimes described as 'individualistic,' as distinguished from the 'universalistic' stand-point of the natural or objective sciences.

II. The Objective Method. By this method we study the minds of others, we infer their mental states from their gesture, behaviour, expression, conduct, etc. As Shakespeare says—

"There's language in her eye, her cheek, her lip,
Nay, her foot speaks; her wanton spirits look out
At every joint and motive of her body."

Its difficulty lies in the withdrawal of attention from the attractive and comparatively durable outer phenomena.

Its merit is that it gives a direct and comparatively correct knowledge of psychical facts, but its defect is that this knowledge is rather individualistic.

(II) The Objective Method is one of outer observation or an examination of the conduct and expression of others as indices to their inner experience.

Likewise *Bishnusharma* writes,

“बाकारैरिज्ञतैर्गत्या चेष्टया भाषणे च ।

नेववक्त्रविकारेण लक्षतेऽन्तर्गतं सन् ॥”

(*Panchatantram*)

This is the *indirect* source of our knowledge of mind. It includes the study of—

- (a) the minds of individuals known to us,
- (b) the minds of individuals of whom we hear or read,
- (c) collective minds or minds in masses, through custom, national traits, racial peculiarities, etc. man being eminently social, his essential characteristics are prominently manifested in society (this study constitutes what is called the *Sociological Method*),
- (d) simpler or elementary forms of mental constitution, as illustrated in children, savages, and lower animals (known as the *Comparative Method* or *Comparative Psychology*),
- (e) abnormal conditions of mind, as illustrated in lunacy, idiocy, amnesia, aphasia, blindness, deafness, etc. the study of the morbid psychical states reveals the *limits* of mental power and thus throws valuable light on the conditions of normal mental processes (known as the *Pathological Method* or *Pathological Psychology*),
- (f) the connection of the mental with the nervous—specially cerebral—processes (known as the *Physiological Method* or *Physiological Psychology*),
- (g) the relation of mental to physical or natural processes, specially by *experiment*, we thus study,

for example, how and to what extent outward stimuli affect the mind and give rise to sensations or impressions (known as *Psycho-physics* or *Experimental Psychology*).

Its difficulty. To interpret aright the mental states of others—specially when in tastes, inclinations, etc., these differ to a great extent from our own—is often a matter of great difficulty, even to men of culture and intelligence.

Its difficulty is to interpret aright the minds of others.

Its Excellence. It gives us a general knowledge of mind : we can eliminate individual peculiarities and gather the common features present in certain mental states by comparing the minds of different individuals. By separating the essential from the accidental and discovering the different 'conditions' and forms of mental life we are able to throw more light on mental operations

Its merit is that it gives a general knowledge of mind, but

Its Defect. We are prone to judge others by our own standard and thus to overlook their mental peculiarities.

its defect is that it is liable to be one-sided and partial through personal bias Both the methods must be combined to render our knowledge of mind at once accurate and general.

To fulfil the conditions of a science, viz., to render our knowledge of mind at once accurate and general, we must have recourse to both (I) the Subjective and (II) the Objective Method, which may be described as the *Methods of Observation*. Hoffding remarks, Psychology "may be pursued by many methods and in many ways. Thus, there is not one psychology, there are many psychologies." (*Psychology*, p. 26.) These methods furnish a knowledge of mental facts or phenomena. But, to explain them, Psychology must have recourse to two other additional methods—viz., the

To explain mental

phenomena, the methods of Analysis and Synthesis should also be employed, which may, therefore, be called the Methods of Exposition

logical methods of (III) Analysis and (IV) Synthesis, which may be described as the *Methods of Exposition*. The aim of a Science is (*a*) to classify its subject-matter and (*b*) to discover the laws or principles governing it. To do so successfully, complex experiences must be analysed into their constituent elements, and synthesis must verify the correctness and adequacy of such analysis. Psychology, accordingly, to secure its end, must employ Analysis and Synthesis.

(B) The Methods of Exposition
 (III) Analysis which, when employed in psychology, implies the ideal separation of the constituent elements of a complex mental phenomenon.

(B) The Methods of Exposition

III *Analysis* Psychological or Logical Analysis should be distinguished from Physical or Chemical. In the latter, there is *actual* separation of parts or elements, in the former, there is only an *ideal* separation. In Psychological Analysis we detect the several elements of a complex product by successively attending to them and, for the time being, withdrawing our attention from the rest. It is to be remembered in this connection that the discovery of elements depends on our prior knowledge of them, at least in other combinations. When certain factors are always co-present, without any modification or variation whatsoever, our attention is never drawn to them, the complex effect is felt, but the elements are not detected. As Prof. James remarks—"It is safe to lay it down as a fundamental principle that *any total impression made on the mind must be unanalyzable so long as its elements have never been experienced apart or in other combinations elsewhere*. The components of an absolutely changeless group of not-elsewhere-

occurring attributes could never be discriminated."

(*Text-Book of Psychology*, p. 248)

It is to be noted that Analysis leads on to *Classification* and *Induction*. When by mental analysis we discover the several elements of a complex psychosis, we evidently refer them to distinct heads, *i.e.*, we begin to classify them. For example, when a percept is analysed into its colour, taste, smell, etc., these are apprehended only as coming under distinct classes (*viz.*, Colour, Taste, etc.). Similarly, by finding out the modes of combination of the elements, we discover the laws of mind ; and this discovery is based on the observation, not of a single instance, but of several instances. Thus, like classification, the inductive determination of laws is closely connected with Analysis.

Analysis is thus closely connected with *Generalization* (Classification and Induction.) Its connection with *Abstraction* is likewise very intimate. Abstraction is taken (*a*) by some to mean the *withdrawal* of attention (Latin *ab*, from, and *traho*, to draw) *from* something, while (*b*) by others it is understood as the *direction* of attention *to* some object of thought. These two meanings are, however, not opposed, but connected ; the withdrawal of attention from something *involves* the direction of attention to something else. In the case of Analysis, the elements singled out are attended to, while the other features are, by turns, overlooked. Thus, Analysis or Generalization involves Abstraction. If we take Abstraction in the second sense (*b*), mentioned above, it may seem to

Analysis
prepares the
way for
classification
and
inductive
generalization

Analysis
and Abstrac-
tion are
closely
connected,
but not
identical

be identical with Analysis, but still there is a difference between them. Both Analysis and Abstraction imply, no doubt, the direction of attention to some element or feature, to the exclusion of the rest, but while Analysis implies an exhaustive enumeration of all the aspects or elements, Abstraction implies the contemplation of one aspect or element alone, to the exclusion of the rest. In the former, all the elements by turns engage our attention, giving a *complete* account of the complex object, while, in the latter, a single factor engages our attention, giving only a *partial* view of the object. Bain observes—"Abstraction and Analysis, if not identical, are the same fact viewed with a slight difference. Abstraction means separately viewing one point of agreement and leaving all other accompaniments in the shade, the transparency is studied by itself, the specific gravity and all other incorporated properties being left out of sight. Analysis means the very same thing, only, proceeding a little farther, it supposes that *every one* of the powers of a given concrete, as water, may be abstracted by turns—transparency, liquidity, specific gravity, so that water as a whole may be analyzed, or separated (mentally) into a number of different powers, whose enumeration is a full account of the agency of water." (*Logic*, II p 399)

IV Synthesis. Psychological Synthesis means the ideal reconstruction of a complex psychosis out of the elements already discovered by Analysis. We thus try to explain a complex mental phenom-

While Analysis implies exhaustive enumeration of elements, Abstraction implies but partial selection of some to the exclusion of the rest

(IV) Psychological Synthesis lies the re-
on

enon by reference to its constituent elements and the laws of their combination. Hence Synthesis is but a confirmatory evidence, as it were, of the correctness and adequacy of the previous analysis.

Synthesis is closely connected with Deduction and what is known as the Genetic Method. To explain a fact is to mention all the conditions or circumstances essential to its production. To explain a mental phenomenon, therefore, it is necessary that all its conditions—mental and nervous (cerebral), natural and social, proximate and remote—should be taken into account. Having discovered these conditions by prior analysis we try to deduce the higher and later forms of mental life from the lower and earlier. Such deduction often implies the application of the laws of mental development or evolution. Mind, as observed by us, is a product of growth and development; hence it becomes necessary to refer to its past history in order fully and satisfactorily to explain the complex psychoses (*e.g.*, Habit). The most important laws of the mind are the laws of mental development. And the method which employs these laws to trace out the process of psychical formation is known as the *Genetic Method*. It explains how the later and more complex psychoses have developed out of the earlier and simpler, and indicates the stages of mental evolution.

By the employment of the above Methods Psychology attempts to explain mental phenomena. But the conditions of valid Psychological Method, as mentioned above, are to believe not merely in

of a complex psychosis out of elements discovered by prior Analysis.

Synthesis is closely connected with Deduction and the Genetic Method.

The Genetic Method traces the stages of mental evolution and explains the later and complex products by reference to the earlier and simpler experiences.

A valid psychological

method
should accept
not only, the
facts of
consciousness
but also their
legitimate
implications

The chief
psychological
problem is
the origin of
knowledge
or psychical
phenomena

Three Schools of Psychology

I The
Intuitionist
School admi-
ts the presence
of original
factors or
tendencies

the facts of consciousness but also in what they legitimately imply. The so-called Psychological Method of Mill (*Vide* next section) is but a combination of the Introspective and the Genetic Method, as described above.

§ 8 Schools of Psychology. As the business of Psychology is to explain mental phenomena, it finally enters into the question of the origin of knowledge. Psychology has ultimately to face the question—Is an adequate explanation of psychoses possible by reference to sense-data alone? or is it not also necessary to suppose the presence of original tendencies for this purpose? Hence the problem of the origin of knowledge is the principal question discussed by modern psychologists. This problem has generally been solved from *three distinct stand-points*—viz., (1) the Intuitionist, (2) the Empirical, and (3) the Evolutional position.

I The Intuitionist School. The supporters of the Intuitionist view hold that our knowledge is a product of two factors—*a priori* and *a posteriori*. The *a priori* factors (e.g., the ideas of space, time, cause, morality) are inherent in the mind from the very beginning of our life, while the *a posteriori* factors (e.g., colour, taste, smell, anger, love) are supplied by experience. The former are due to the very constitution of the mind, while the latter are peculiar to the experience itself. The former are constant, while the latter are variable. Both are indispensable *conditions of knowledge*, the one supplying, as it were, the *form* and the other, the *matter*. As a tree is the outcome, not of the seed alone, but also

of the soil, so knowledge illustrates both the *a priori* and the *a posteriori* factors. And as the soil supplies the condition for the manifestation of the germinating power inherent in the seed, so experience supplies the condition for the revelation of the innate ideas. But experience is only the occasion when they are known ; it is not their source. Without experience, these innate ideas would lie dormant in us, and would never develop. Hence they have been sometimes described as *con-nate* rather than *innate*. The marks or characteristics of these ideas are (a) *self-evidence*, (b) *necessity*, and (c) *universality*. (a) No explanation is necessary to render them clear ; to apprehend them is to understand them within the limits of sanity no one can question their truth (b) Without them no mental exercise is possible to transgress the laws of thought and morality is, so to speak, to commit intellectual and moral suicide. (c) Being due to our very constitution, they are the inseparable conditions of mental exercise . they transcend the limits of time and place, and are to be found in all men ; education and circumstances cannot possibly alter them, though they may modify their development.

According to this view knowledge is a product of *a priori* and *a posteriori* factors

The marks of *a priori* factors are (a) self-evidence, (b) necessity, and (c) universality

Intuitionists, though admitting the existence of *a priori* factors, differ in their views of their true meaning or significance. (1) Some (e.g., Kant and Mansel) hold that the *a priori* factors are purely subjective forms or mental conditions without any objective significance, their function being but to organize or systematize knowledge. (2) Others (e.g.,

Intuitionists differ in their estimate of the *a priori* factors.

(1) Some (e.g., Kant) take them to be only subjective forms, while

(2) others (e.g., Martineau) regard them as objective conditions of experience

Martineau and Mc Cosh), on the contrary, maintain that the *a priori* factors correspond to realities, there being perfect correspondence between the subjective and the objective world. According to Dr Martineau, the *conditions of a valid psychological method* are —(a) To give precedence to knowledge gained through introspection, and (b) to believe, not merely in the facts of consciousness, but also in what they legitimately imply. The latter condition means that, if mental phenomena imply in their very nature certain objective assumptions, we are to accept them as true. The psychological method, as Martineau points out, "believes in the inner experiences not simply as appearances within us, but, when they offer testimony, as witnesses of realities without us" (*Types*, II, p. 6)

In a wide sense 'Intuition' means presentation, which may be either *a posteriori* or *a priori*, but in a narrow sense it indicates only the latter

Hence the name 'Intuitional School'

II The Empirical School denies the presence of *a priori* factors and

It may be mentioned here that the word *Intuition* means presentation: anything immediately present before the mind is thus intuitively known. Such presentation, however, may be either (1) an *a posteriori* factor—a fact of an outer or inner sense—e.g., a colour seen, a sound heard, or an anger felt, or (2, an *a priori* factor—a fact of Reason which is the source of primary truths—e.g., ideas of Space, Time, Cause. The former (1) is called by some *lower intuition*, and the latter (2) *higher intuition*. The expression 'Intuitional School' implies the admission of 'higher intuition'.

II The Experiential or Empirical School The supporters of this view hold that all knowledge is the outcome of Experience. The mind at birth, it is urged, is, as Locke says, a *tabula rasa* or a blank

tablet, on which experience writes everything. And as experience, according to them, is ultimately reducible to sensations, these, they declare, are the alphabet of which the language of experience is composed. Sensations are the elements ; and experience or knowledge is but the complex product. Hence the Empirical School is known also as the Sensational School. The supporters of this theory maintain that the complex mental operations or ideas develop out of sensations according to the Laws of Association. Conscience, Benevolence, Space, Time, Substance, Power, Cause, and all other ideas and operations are explained in this way. The Laws of Association are thus viewed by these writers as universal solvent—dissolving every experience into mere sensations. Hence this school is called also the Associational School.

Empiricists deny the existence of innate or *a priori* ideas "The doctrine of innate ideas," observes Bain, "presumes on the finality of some one analysis of the mind." (*Mental Science*, p. 182.) To assume, it is urged, is not to explain. The facts of adult consciousness are, all complex Mill says, "We have it not in our power to ascertain, by any direct process, what Consciousness told us at the time when its revelations were in their pristine purity. It only offers itself to our inspection as it exists now, when those original revelations are overlaid and buried under a mountainous heap of acquired notions and perceptions." (*Examination of Hamilton*, p. 177.) So, on the evidence of present consciousness, we must start with sensations

traces every-
thing to sense-
impressions

It is known
also as the
Sensational

or Associa-
tional School.

Empiricists
(e.g., Mill
and Bain)
deny the
presence of
a priori
factors on the
ground that
the complex
facts of adult
consciousness
cannot
possibly
reveal the
psychical
elements of
infancy.

Sensations,
according to

them, are the elements of which we are aware, that can adequately explain all experience or knowledge
The Psychological Method of Mill

But empiricists overlook that mere passivity cannot explain psychical phenomena

Even Association implies mental activity exercised according to original conditions or *a priori* factors

III The Evolutional School tries to reconcile ^{but two} by

as the elements and try to explain all knowledge by reference to these If this attempt prove futile, then—and then alone—we shall be justified in regarding the residual factors as innate. This procedure is called by Mill the *Psychological Method*, as distinguished from the Introspective (*Exam p 179*) Bain thus lays down the watchword of the Empirical position—"Nothing is to be held innate that can be shown to arise from experience and education" (*Mental Science*, p. 182)

Two main objections have been brought against the empirical position (1) Mere receptivity or passivity, without an active factor, can never be the basis of experience Even sensations, as mental experiences, involve mental activity in the shape of attention, discrimination, and assimilation To pronounce these as the outcome of sensations is to put the cart before the horse , and mental activity always involves the *a priori* factors as due to its very nature (2) Association can never create an entirely new idea or operation As a chemical compound implies chemical *action* and is not the product of a *mere combination* of elements, so a new or complex idea implies mental *activity* and is not the outcome of a *mere association* of elementary experiences A complex or compound product, physical or psychical, always involves an expenditure of energy

III The Evolutional School. The supporters of this theory employ the doctrine of heredity to account for the *a priori* factors They maintain that, these factors were not present in the earlier genera-

tions of mankind ; they have made their appearance comparatively late in the history of the race. Evolutionists thus adopt a position intermediate between the other two schools. They hold that, in the later generations of mankind, there are some *a priori* factors which may ultimately be traced to ancestral experience. Physiology testifies to the fact that every psychosis is attended with a nervous modification in the brain , and repeated experiences of a particular kind (*e.g.*, perception of objects in space) deepen a nervous modification in an individual, which he transmits to the next generation.} The faint inherited nervous modifications in this generation are strengthened by further personal experience, and the result is again transmitted to posterity. In this way, in the course of several generations, the cumulative effect becomes sufficiently marked and makes itself felt as an inherited tendency to think, feel, or act in a certain way. Thus, the ideas of Space, Time, Cause, Morality, etc., though originally the outcome of experience, have become innate or *a priori* in course of time.

The objections to the Empirical Theory are also applicable to the Theory of Evolution. The following additional defects may also be noted —(1) Evolution Psychology is hypothetical and obscure : to explain the facts of consciousness by reference to ancestral experience is but a form of *obscurum per obscurius*. As Martineau says, the supporters of this view take refuge from the strong light of personal consciousness "in an earlier twilight, where no body can tell exactly what goes on...In the

maintaining that, though through heredity some *a priori* factors appear in the later generations of mankind, yet originally these factors were derived from experience

The objections urged against Empiricism may also be urged against this School Moreover, it explains the clear by the obscure or at least the less obscure by the more obscure.

very act of creating the evidence, you hide it all away , and the real result is, that you make the story what you please , and no one can put it to the test." [Types, II, p 365] (2) Again, how is it that the number of *a priori* factors is not increasing with the length of time and the further cumulation of experience ? If time has produced them, time may increase their number or even undo or modify them But the very supposition is absurd The fact is that heredity may intensify or weaken a tendency already existing, but it can never create one altogether new. It has been well said by Martineau that Heredity can never enable the eyes to hear, or the ears to see, or the hyena to acquire a conscience .

§ 9. Psychical and Psychological Facts.

Let us conclude this chapter with a brief notice of the distinction between psychical and psychological facts. Psychical facts imply only the facts of consciousness, what is outside consciousness being outside mind , but psychological facts are all those facts which are essential to explain psychical processes All psychical facts are psychological facts, but not *vice versa*. The psychologist, in accounting for a mental phenomenon, should mention all the conditions or factors which are necessary to its production , but some of these factors may be outside the pale of consciousness In explaining, for example, a sensation, the connected nerve process is mentioned , or, in accounting for the high intelligence of a boy in a talented family, the hereditary transmission of parts is noticed. Now, the nerve process

It is also inconsistent with the constancy and universality of the factors believed to be *a priori*.

Psychical facts are facts of consciousness, while psychological facts are all facts (*e.g.*, nervous or social) which throw light on them

or the hereditary transmission of acquirements is not present in consciousness, though both of them are required to explain psychical facts. It is no doubt true that these facts are known to, and hence present in, the mind of the psychologist when he tries to explain psychical phenomena ; but they are obviously absent from the consciousness of the person in whom they operate. The person experiencing a sensation is not conscious of the connected nerve-process, nor is the intelligent boy aware of the principle of heredity. These facts, as outside of consciousness, are not properly psychical ; but they acquire a psychological interest in as much as they are necessary to explain psychical phenomena. As Stout remarks—"Though there are psychological facts which are not psychical, their psychological character is derivative and subsidiary. The psychologist takes account of them only if, and so far as, they are necessary to the formulation and explanation of processes which are in the proper sense psychical, which in some way enter into consciousness." (*Psychology*, p 9)

§ 10 Scope of This Work . Distribution of Topics. Psychology, as we have seen, undertakes to explain the way in which the mind works, to determine its various moods and the laws which govern them, without entering into the question of what the mind is in its ultimate character. As the different operations of the mind may conveniently be brought under three principal heads, *viz.*, Intellect, Feeling, and Conation, the three chief divisions of Psychology treat of

Psychology
explains
mental
processes and
investigates
their laws.

Arrangement of Topics
Book I—
Introductory

these three prominent forms of mental exercise. To these three main divisions a preliminary account of Psychology as a Science and of Mind and Consciousness as its general subject-matter is ordinarily prefixed. The present work is, accordingly, divided into six Books, the first of which explains the character and scope of Mental Science, the relation which Mind bears to Body, as well as the relation of this Science to the other Sciences.

Book II—
General View

Book III—
Intellection

Book IV—
Feeling

Book V—
Conation

Book VI—
Concrete
Mental Life

Book II gives a general View of Mind, indicating the chief forms of its manifestation in Consciousness, their elements, conditions, and course of development. Book III is devoted to the exposition of Intellection in its three prominent forms of Perception (Division I), Imagination (Division II), and Thought (Division III). Book IV treats of the varieties and conditions of Emotional Experience, while Book V unfolds the factors, forms, and laws of Conation. Book VI finally tries to show how the elements and principles, explained in the prior Books, are illustrated in the Concrete Mental Life of an Individual. It aims at exhibiting synthetically what is established analytically in the previous Books.

§ 11 Exercises.

- 1 Define Psychology and point out its relation to Logic, Ethics, and Metaphysics
- 2 Briefly describe the several sources whence the data of Psychology are obtained. What is meant by the statement that "All introspection is retrospection"?
- 3 State briefly the advantages and disadvantages of the subjective and objective methods.

§ II.] DEFINITION AND SCOPE OF PSYCHOLOGY. 33

4 Is Experiment possible in Psychology? Describe any two simple experiments in Psychology, indicating also the aim and result of each experiment

5 What are the characteristics which differentiate Mind from Matter? In what different senses has the term 'Mind' been used?

6 Give your own views as to the province and main divisions of Psychology. What is meant by Comparative Psychology?

7 Explain the scope and stand-point of Psychology. Examine in this connection the statement—"The stand-point of Psychology is what is sometimes termed 'individualistic', that of the so-called objective sciences being 'universalistic'"

8 Distinguish between Psychical and Psychological Facts. Explain and examine the methods essential to the construction of Psychology.

9 What do you understand by Analytic and Genetic Psychology? How do they contribute to our knowledge of Mind?

10 Briefly explain the different Schools of Psychology and support the view which seems to you to be correct.

CHAPTER II.

MIND AND BODY.

§ 1. The Relation of Mind to Body.

A correct and adequate knowledge of mind involves a reference to the connected nerve-processes.

What we call the human mind is not a disembodied spirit, but a psychical principle united to a bodily organism man is not mind alone, nor body alone, but body as animated by the presence of a soul Different views have been held with regard to the relation of mind to body, some maintaining that the two are distinct substances (*Dualism*) while others, that they are ultimately one (*Monism*). Among dualists, again, there are some who maintain that the two substances are so very unlike that one of them cannot possibly act on the other (*Occasionalism*), while others hold that, in spite of their distinctive characters, they are harmoniously united, so that one can act on the other (*Interactionism*) Let us consider these views separately.

The human
mind is
closely
connected
with the body

Views of the
relation of
mind to body

I Occasional-
ism, which
denies
interaction
but admits
correspond-
ence
(Geulinx)

is unten-
e, as we
conscious

I *Dualism as Occasionalism* According to some (e.g., Descartes and his followers) mind and body are two distinct substances, characterized by opposite attributes or qualities, and hence they cannot interact How can the extended (body) act on the non-extended (mind), and the non-extended on the extended ?

It may be remarked, however, that this view confounds inconceivability with impossibility we

cannot deny a relation or connection, because we are unable to imagine it. Moreover, we are conscious at every moment of the close connection between mind and body, and we are not justified in overlooking this fact, because we are unable to account for it.

of interaction,
though we
may not be
able to
explain or
imagine it.

II. Monism. The other extreme position is that mind and body are not two distinct substances, they are ultimately but one. On this supposition, no difficulty is felt in explaining the relation of mind to body, since they are at bottom one. But this view assumes three distinct forms

II Monism,
which admits
only one
substance.
This view
wears three
forms

(1) *The Doctrine of Identity Parallelism.* According to certain writers (*e.g.*, Spinoza), spirit and matter are not distinct substances, they are but different aspects of one and the same substance, which is above this antithesis. When the primitive substance appears under the attribute of extension, we find matter, and when it appears under the attribute of thought, we find what is called the spirit or mind. Thus, the primitive substance, like Janus, has at least two faces—one physical, the other mental. And if mind and body are but different aspects of one and the same substance, no difficulty is felt in explaining the connection between them.

(1) Parallel-
ism, which
maintains
that Mind and
Body are but
different
aspects of one
fundamental
substance.
(Spinoza)

It may be mentioned, however, that this theory not only contradicts our common experience of the duality of substance, but also fails to render a satisfactory account of the relation between the two attributes. The two attributes of thought and extension are in themselves opposed · thought is

It is, however,
untenable, for
(1) it fails to
reconcile the
conflicting
attributes of
thought and
extension and
(2) to establish
a thorough

correspondence between them.

not extension, nor is extension thought. If matter and spirit are but different aspects of the same substance, so that a table, for example, and its idea are really the same thing, viewed under different aspects, how is it that we do not find any material aspect of such a phenomenon as love, anger, or hope? Does it not suggest that what appears under the attribute of thought is not necessarily that which appears under the attribute of extension?

(2) Idealism,
which resolves
matter into
mind

(2) *Idealism.* According to Idealists (*e.g.*, Berkeley) mind or spirit is the only substance which exists, and what we call matter is but an aggregate of ideas. A material object is resolved into qualities, and the qualities into sensations, which are but modifications of mind. Thus, the external world is nothing more than an aggregate of objects representing permanent possibilities of sensations. If matter is thus reduced to mind, the difficulty of explaining the relation of mind to body does not arise. Without entering here into the merits of this theory, which we shall examine in Chapter IV, § 7 (4), we may mention that this view also contradicts the common experience of the presence of two substances.

It is also
inconsistent
with facts

(3) Materialism, which
resolves mind
into matter
(Hobbes)
Mind is but a
function of the
brain

(3) *Materialism.* According to Materialists (*e.g.*, Hobbes), matter or body is the only substance which exists, and what we call mind is but a modification or function of it. Matter, in a highly organized form, manifests itself in the shape of mind. According to this view, mind is but the function of the brain. As, for example, the legs have muscles for locomotion, so the brain has fibres

for cogitation. Acting upon this hypothesis, phrenologists have been led to localize the different mental faculties by referring them to the different parts of the brain.

It should be noted, however, that from the close connection of mind with body we are not justified in inferring that the one is but a function of the other. (1) The function of an organ is a material product which is ascertained by us by means of the senses. That the function of the heart is to propel the blood through the arteries, of the liver to secrete the bile and help digestion, or of the kidneys to secrete the urine, is perceived by us through the senses : both the organ and its function in such a case are known to us through the senses in terms of matter and motion. But, in the case of the brain and the mind, the one is known through the senses, while the other is revealed only in consciousness. How, then, can we possibly discover that the one follows from the other ? There may be a correspondence between them, but the one is not the same as the other. Psychical facts are altogether different in kind from material phenomena , and any attempt at their identification must prove futile. (2) The appropriate action of an organ is its function , and hence the function is determined by the organ. But, in the case of mind and body, we find the mind controlling the body It is certainly absurd to maintain that the function governs its organ. (3) In many cases we find marked similarity in the structure of the brain without a corresponding agreement in mental functions. The brain of anthropoid

This view also
is untenable,

as (1) the
mental
functions are
not perceptible
by means
of the senses,

(2) the mind
is observed to
control the
body, and

(3) there is no
perfect cor-
respondence
between
cerebral
structure and
mental
functions.

apes is very much similar to that of man , but the difference in, mental power is enormous. Under these circumstances we are not justified in holding that the mind is but a function of the brain, though such a supposition may remove the difficulty of explaining their relation

III Interactionism,
which
maintains that
mind and
body
influence
each other

It is supported
by experience.

Proofs of
intimate
connection
between mind
and brain

III Dualism as Interactionism The third possible view which remains to be considered is the view held by many modern writers (*e.g.*, Professors Ward and James), namely, that mind and body, though distinct substances, are closely connected with each other In support of this position it may be said that it is countenanced by common experience or the ordinary facts of our life. We may be unable satisfactorily to explain the precise manner in which the one influences the other , but because we are unable to explain a fact, we cannot ignore it In fact, there are few things in this universe which we are competent fully to explain , and if explanation be the test of existence, then many things would be voted out of existence altogether

The close connection between the Mind and the Brain is evidenced by the following facts —

(a) When we are mentally dejected, then physically also we are depressed , and the moment of elation is also the moment of heightened physical energy. When we are very much excited in mind, we localize pain in the head one feels giddy, as it were, with extreme joy or grief.

(b) Severe mental exercise produces fatigue and nervous exhaustion Confusion and headache are the common concomitants of mental strain

(c) Abnormal mental conditions are found to be connected with the morbid conditions of the brain amnesia, aphasia, insanity are usually attended with lesions of the brain. A severe blow on the head may paralyse mental powers for the time being.

(d) Mental exercise is followed by the elimination of waste products which are chiefly composed of brain-substance (phosphorus),

(e) Mental exercise is accompanied by an increased circulation of blood in the brain.

(f) In sensation, the sensory current must reach the brain, otherwise no sensation is produced.

(g) Interruption of the supply of arterial blood to the brain materially affects consciousness, which may even be suspended in such a case.

(h) There is a general correspondence between the size and development of the brain and the degree of mental power found in man or animals. The average weight of the human brain is 48 oz. In men of genius the weight may come up to even 14 oz. (as in the case of Cuvier); while in idiots the weight may come down to even 32 oz.

Many other facts may be adduced in support of the position that the mind and body (specially the brain) are very closely connected with each other. The mental and cerebral processes being intimately connected with each other, we naturally expect that corresponding to every individual peculiarity of mental constitution there is a special configuration of the brain. In the case of man, for example, the brains of different individuals,

The general similarity of cerebral structure is

modified in different cases according to individual peculiarities.

The close connection of mental and cerebral processes may be turned to practical account by varying the different forms of psychical activity

though resembling one another in general and broad features, are characterized by special peculiarities of formation corresponding to individual temperaments or idiosyncrasies

This knowledge of the close connection between the mental and the cerebral processes can very well be turned to practical account. As every mental exercise costs some amount of psychical as well as cerebral energy, it is but meet that we should take the brain in a fresh and vigorous condition in order successfully to exercise the mind. Thus, the morning, when the brain is refreshed after sound sleep, is more conducive to hard study than the afternoon, when the brain energy is exhausted to a great extent after the day's work. Again, as different centres are connected with distinct mental functions, we may successfully vary mental exercise by varying the exercise of the different centres. Hence the utility of variation in routine work and the different forms of mental exercise.

The physical organs of mind

§ 2. The Physiological Conditions of Mental Life. The physical organs connected with the mental processes are —(I) The Brain and Nerves, (II) the Organs of Movement or the Muscles, (III) the Organs of Sense, (IV) the Viscera, including the alimentary canal, the lungs, the heart, etc. The greatest intimacy of connection is with the Brain and Nerves.

I. The focus
of Nerves
, which
the

§ 3 I The Nervous System It is composed (i) of a multitude of fine cords, found in every part of the body—the *Nerves*, and (ii) of

central parts to which those cords lead. The central portion, intimately connected with mental life, is the *Cerebro-Spinal Nervous Centre*, which consists of (1) the *Brain* and (2) the *Spinal Cord*.

(1) The Nerves are the branching or ramifying cords, proceeding from the centres, and distributed to all parts of the body. They are of two kinds - the one, called *sensory*, *incarrying*, or *afferent*, is employed for conveying influence inwards to the centres, in sensation ; while the other, called *motor*, *outcarrying*, or *efferent*, is employed for conveying influence outwards to the muscles, in movement. These are usually combined in the same trunk nerve. The nerves have also been locally divided, for the sake of scientific convenience, into *spinal* and *cerebral*, according as they emerge from the spinal cord, or directly from the brain. The *cerebral nerves* are nearly all pure, *i.e.*, either sensory or motor. Twelve pairs of nerves arise out of the brain at its base, the first pair being *olfactory* ; the second, *optic* ; the eighth, *auditory* , and parts of the fifth and ninth, *gustatory*. The tenth pair is intimately connected with General Sensibility. The *spinal nerves* (thirty-one pairs in number), emerging at openings between the vertebræ, are chiefly distributed to the muscles and to the skin. They are mixed nerves, having two distinct roots at their origin—one being motor and the other, sensory ; but these two separate nerves at the root are joined into one at a little distance and afterwards continue so united.

Cerebro-
Spinal
Nervous
Centre made
up of (1) the
Brain and (2)
the Spinal
Cord.

(1) The
Nerves, in
respect of
their function,
have been
classified into
sensory and
motor ,

while, in
respect of
their origin,
they have
been
classified into
spinal and
cerebral.

The nerve-matter is composed of grey substance, which is cellular, and white substance, which is fibrous

The grey matter is more highly organized and is found only in the centres, while the white substance makes the nerves

The cells are centres of nervous energy and are the points of communication among the different nerves, which are only pure conductors

Three parts of nerve-fibres which constitute an apparently single nerve.

The *nerve matter*, of which both nerves and nerve centres are composed, is a delicate soft tissue of which there are two kinds—*grey*, chiefly made up of *cells* (also called vesicles or corpuscles), and *white*, formed of *fibre*s. The *grey matter* appears to be the more highly organized, in as much as in the brains of the most intellectual persons a greater quantity of it is discovered than in those of the less gifted ones, moreover, the grey is found only in the nerve centres, while the white alone makes the nerves and mingles with the grey in the centres

The *nerve cells* always contain a *nucleus* and are of various shapes small solid bodies, round, pearshaped or irregular, with prolongations to connect them with the nerves. The cells or corpuscles are richly supplied with blood (so are the nerve fibres) and are supposed to be the *centres* of nervous energy or influence, or, at all events, parts where the nervous energy is reinforced. Hence the masses of grey matter are spoken of as constituting the Nerve Centres. The cells are also Grand Junctions or Crossings, where the fibres extend and multiply their connections. It may be mentioned in this connection that the nerves are pure conductors, transmitting energy either to or from the centres

The *nerve fibres*, the constituents of white matter, are made up of (1) a fine membrane, called the *tubular sheath*, enclosing (2) a fluid fatty matter which in its turn surrounds (3) a delicate firm interior—believed to be the essential part of the nerve. The nerves, like the muscles,

are composed of bundles of these primitive fibres. The two elements, fibres and cells, together with enclosing membranes, blood vessels, and cellular tissue, make up the nervous system, both centres and ramifications. In the enormous multiplication of independent nerve-elements we seem to have the suitable provision for the vast number of communications needed in the ordinary actions of human beings.

(ii) The Cerebro-Spinal System is by far the more important. (1) The Brain,

"The cloven sphere that holds
All thought in its mysterious folds,
That feels sensation's faintest thrill
And flashes forth the sovereign will,"

is enclosed within the cavity of the skull. It is a complex organ, consisting of several parts, the hindermost of which, termed *mcdulla oblongata*, passes insensibly into, and in its lower part has the same structure as, the spinal cord. The great top mass is the principal part of the brain, the *Cerebrum*. In the cerebrum the grey matter is external to the white, and is doubled up into a great number of folds or *convolutions*. The effect of this is to increase the surface of grey matter; and it is a noteworthy fact that as animals descend in the scale of intelligence their brains contain fewer and fewer convolutions, while men of exceptional ability have been found, by *post mortem* examination, to possess brains remarkable for the numerous convolutions and for the depth of the intervals between the folds, the *sulci*. The cerebrum is

(ii) The Cerebro-Spinal System consists of (1) the Brain and (2) the Spinal Cord.

(1) The Brain, of which the principal part is the *Cerebrum*, is the organ of mind

In the Cerebrum the grey matter is external to the white and is convoluted

Two hemispheres of the cerebrum.

divided nearly into two halves, called *hemispheres*, by a central longitudinal fissure. At the bottom of the fissure, the hemispheres of the cerebrum are joined together by a bridge of white matter—a thick mass of transverse fibres—called *corpus callosum*. Each hemisphere is enlarged backwards, downwards, and forwards into three *lobes*, marked off by fissures extending some distance down into its centre

In the interior white matter are imbedded some enclosed masses of grey substance, called the *lesser grey centres* of the brain (or the *ganglia at the base of the brain*), which are regarded as the medium of connection between the hemispheres above and the great stem below. These are from before backwards (1) two bodies called *corpora striata*, (2) two bodies called *optic thalamus* (supposed by the older anatomists to be connected with vision), and (3) four bodies called *corpora quadrigemina*. The *corpora quadrigemina* is closely connected with the optic nerve, and has important functions relating to vision. Resting on the middle cleft of its four eminences is a small conical body, called the *pineal gland*, curious as being supposed by Descartes to be the seat of the soul

The functions of the cerebral hemispheres comprehend all, or nearly all, that is comprised in mind. When they are destroyed, movements are still possible but apparently without purpose or consciousness. Thus, broadly speaking, the brain is a mass of white matter having certain grey centres embedded in it and having for its outer coat a grey

Its lesser grey centres.

The cerebrum is believed to be the seat of mental functions

substance of about one-tenth inch in thickness and 325 (sometimes as much as 670) square inches in surface area when spread out. This outer coat or rind is known as the *Cortex*, which is directly connected with consciousness ; and the connection between cortical process and conscious process is both general and special: the cortex as a whole being connected with conscious process in general, while special parts of the cortex are, to a certain extent, connected with special mental exercises, so far as these are associated with particular organs of sensation and movement.

The *Cerebellum* or little brain lies at the back of the skull, completely overhung by the posterior lobes of the cerebrum, and itself partly overhanging the medulla oblongata, but extending also quite into the back of the skull behind the medulla. Its outer portion is made up of grey matter, while the interior, of white. It is a wedge-shaped body, divided into two halves, which are united laterally by the *pons Varolii*, that contains both transverse and longitudinal fibres and connects together the medulla, the cerebellum, and the cerebrum. The connections of the cerebellum are, beneath, with a detached branch of the great stem, and above with the hemispheres, through the corpora quadrigemina. Its function is supposed to be to maintain rhythmical and combined movements (*e. g.*, walking, flying, swimming).

(2) The *Spinal Cord* is the rod or column of nervous substance enclosed in the backbone. It runs down from the brain through the centre of

The Cerebellum or little brain has also grey matter outside and white matter inside.

It is believed to be the organ of rhythmical and combined movements.

(2) The Spinal Cord is the nervous substance

enclosed in
the backbone
In it the white
substance is
external to
the grey

Its upper and
expanded end
entering
the brain is
known as the
Medulla
Oblongata

The spinal
cord performs
the functions
of a centre
and keeps up
reflex move-
ment

The nerve
centres
consist of
sensory
centres and
motor centres,
which are
combined in
sensory-motor
aggregates

the vertebral column, and contains both grey and white matter, which are arranged in precisely the opposite manner from that of the cerebrum and cerebellum. In the cord the white matter is external and the grey is inside, arranged like two half-moons with their backs turned towards each other. A narrow canal, called the *central canal*, runs right through the centre of the cord, and is continuous with the *fourth ventricle* or the central cavity of the *medulla oblongata*, which (about $1\frac{1}{2}$ inch in length) is the expanded upper end of the spinal cord entering the skull with additions of grey matter. The spinal cord has the functions of a centre, in other words, it completes a circle of nervous action, so that certain movements, in answer to stimulants, can be kept up by means of it alone. It, together with the medulla oblongata, which is also the centre of important nerves, keeps up *automatic* or *reflex* movements.

It may be mentioned in this connection that the nerve centres consist of sensory centres, which receive excitation from without by way of the incarrying nerves, and motor centres, which excite or innervate the outcarrying nerves. These sensory and motor centres, like the corresponding nerves, are intricately connected one with another in sensory-motor aggregates, and these aggregates again form a closely connected series of sensory-motor centres of increasing degrees of complexity. Following this double division we should have, as a corresponding psychological division, sense-impressions and ideas derived from them, and movements or actions.

Owing to the complexity of centres and of mental states, only a very rough physiological mapping out of the mental functions is practicable.

§ 4. II The Muscular System. The fibrous contractile tissue forming the flesh of men and animals, by means of which the movements of the body are performed, is called the *muscle*. Muscular tissue is composed of very fine fibres, collected into separate masses of great variety of form, each mass being a muscle. Its peculiar property is *contractility*. The ultimate fibres of the muscles, the fibrils, are found to consist of rows of rectangular particles, in the contraction of the muscle, these particles become shorter and thicker. The contraction of the muscle requires the agency of the nerves, distributed copiously to the fibres. A further condition of contractile power is a supply of arterial blood. The oxidation of the substances found in the blood is the ultimate source of muscular power. The muscles are nearly all arranged in pairs, each with its antagonist, so that, as they contract or expand alternately, the bone to which they are attached is moved to and fro. The ends of the muscles are generally attached to the bone by strong, flexible, but inelastic tendons. The muscular fibres spring from the sides of the tendon, so that more of them can act upon the bone than if they went directly to it.

II. The Muscles, which are the organs of movement

The muscular tissue is composed of very fine fibres which are contractile.

The nerves enter into these fibres.

The muscles are arranged in pairs, by the contraction and relaxation of which movements are performed

§ 5. III. The Sense-Organ. These are —

(1) **Taste.** The organ of taste is the tongue, and the seat of sensibility is its upper surface; the sensibility is less in the middle and most

III. Sense-Organ.
(1) **Taste.**
The upper surface of the tongue

covered with papillæ is the seat of sensibility, which is specially acute at the base

in the base, sides, and tip. The upper surface is covered with small conical projections, called papillæ, the sizes of which are of three kinds the smallest ones cover the greatest part of the tongue, disappearing towards the base, the middle ones are distributed to the middle and forepart, being most numerous towards the point, the large-sized are eight to fifteen in number, situated on the back of the tongue, and arranged in two rows at an angle like the letter V. The papillæ contain capillary blood-vessels and filaments of nerve, and are the seat of the sensibility of the tongue. Branches of the ninth pair (*glosso-pharyngeal*), distributed to the back part of the tongue, are the proper nerves of taste, twigs of the fifth pair, distributed to the forepart, rather belong to the tactual sensibility of the tongue. The objects of taste are chiefly the materials of food which, coming in contact with the tongue and mouth, excite saliva to flow in that dissolves them. The dissolved food, combining with secretions from the blood vessels of the papillæ, gives rise to the sensation of taste. Thus, taste may be regarded as a modification of touch, and the mode of action on the nerves, as of a chemical nature.

and the objects of taste are all articles of food when dissolved in the saliva

Taste may be viewed as a modification of touch

(2) Smell

The place of sensibility is the membrane lining the inner ties of

(2) Smell The organ of smell is the nose, and the place of sensibility is the membrane that lines the interior and complicated cavities branching out from it. The olfactory nerve is copiously distributed in the interior recesses, disappearing altogether near the entrance of the nostrils, while twigs of the fifth pair are distributed to the latter part, giving

The proper nerves of taste are the ninth pair,

it thereby a tactile sensibility. The mode of action of odours appears to be a process of oxidation. Gases or volatile particles, emanating from objects of smell, enter the nostrils and by a process of oxidation affect the olfactory nerves in the interior recesses, thus giving rise to sensation. It is determined that unless a stream of oxygen passes through the nose, there is no smell, and odorous substances in general are such as oxygen can readily act upon. Thus, smell, like taste, may be regarded as a modification of touch.

Gases or volatile particles issuing from objects stimulate the olfactory nerves in the interior recesses of the nose.

Smell also may be regarded as a modification of touch.

(3) Touch It is sometimes called the common sense, since its nerves are spread over the whole body. The sensitive organ is the skin together with the interior of the mouth, the tongue, and the nostrils. The *true skin*, lying underneath the protecting covering—the *cuticle*—and containing the papillæ, nerves, and blood-vessels, is the sentient structure. The papillæ cover the whole surface of the skin, but are largest and closest on the fingers, the palms of the hands, and the soles of the feet. Into them blood vessels enter, and also nerves, and they are the medium of the tactile sensibility of the skin. Whenever two points produce a double sensation, we may imagine that one point lies on the area supplied by one distinct nerve, while the other point lies on the area of a second nerve. Though local discrimination thus varies with the supply of nerve-fibres, yet there is no exact correspondence between them—for the circles of sensation, instead of lying wholly outside one another in a mosaic arrangement, overlap one

(3) Touch.
As it is diffused over the whole body, it is sometimes called 'common sense.'

The true skin, containing the papillæ and nerves, is the sentient structure.

The sensibility is comparatively acute in the mobile parts of the body, such as hands, feet, and lips

The action in touch is simple pressure

(4) Hearing
Three parts of the ear

(1) the external,

(2) the middle,

another in an intricate way. The local sensibility of touch is finer in the mobile parts of the body (hands, feet, lips, etc.) than in the comparatively fixed parts (the trunk)* It is finest at the *tip of the tongue* (which along with the *lips* shares in the specialized tactal sensibility of the *hands* and particularly of the *finger tips*). Very small *muscular fibres* have been discovered in the skin, they are easily affected by cold and their contraction makes the shivering of the skin. The action in touch is simple pressure, compressing the skin, and through it, the nerve-filaments embedded in the papillæ

(4) Hearing. The organ of hearing, the ear, is divided into the (1) *external*, (2) *middle*, and (3) *internal ear*. Of these three parts the third is the sentient part, while the first two are mere appendages to it.

(1) The *External Ear* includes the wing of the ear and the external cavity which runs up to the membrane of the Tympanum or middle ear. The wing of the ear receives the waves of vibrating air and, reflecting them, augments the sound.

(2) The *Tympanum* or *Middle Ear* is an irregular cavity (situated within the petrous bone) proceeding from the *membrane of the tympanum* or drum to the wall which separates it from the *Labyrinth* or internal ear. It is full of air, like a drum, and communicates with the pharynx by the Eustachian tube. A chain of three little bones—

* The evolutionists are of opinion that the finer discriminative sensibility of the mobile parts is due to its development through successive generations by means of movement

named from their shape the *hammer*, the *anvil*, and the *stirrup*—is stretched tightly between the inner side of the membrane of the tympanum, which is kept soft by a fluid wax, and the membrane which covers the oval opening in the wall that separates the Labyrinth from the Tympanum. To these bones are attached minute muscles, the largest of which called *tensor tympanum* is attached to the outer bone of the chain. The action of the tensor tympanum is to draw inwards and tighten the tympanum.

(3) The *inner* and fundamental *portion* of the organ of hearing is called, from its complexity, the *Labyrinth*, and consists of three parts. In front, and continuous with the middle ear, is (*a*) the *vestibule* or ante-chamber; from it open (*b*) three *semicircular canals* on the one side, and (*c*) the winding stair of the *cochlea*, or snail-shell, on the other. Within the bony labyrinth is contained the membranous labyrinth, upon which the ramifications of the auditory nerve are distributed. Floating in the liquid secretion which fills the (membranous) labyrinth is a little bag containing hair like bristles, fine sand, and two ear stones (*otoliths*). All these knocking against the ends of the nerves, serve to increase any impulse given to the liquid in which they lie. Finally, to complete this delicate apparatus, in the cochlea are minute rod-like tendrils named, from their discoverer, *fibres* or *rods* of *Corti* with which the terminal fibres of the nerve are in close relation. These rods of Corti are regularly arranged—the longest at the bottom and the shortest at the

and (3) the internal, of which the last is the fundamental portion, the other two being mere appendages to it.

top—somewhat in the manner of the key-board of a piano Could this spiral plate, which coils two and a half times around, be unrolled and made to stand upright, it would form a beautiful microscopic harp of three thousand strings

The objects of hearing are material bodies in a state of tremor or vibration from being struck.

The aerial waves of sound entering the external ear strike the membrane of the tympanum, which transmits the shock to the membrane in the oval opening of the Labyrinth by means of the chain of bones The stirrup bone, the last bone of the chain, striking the membrane of the oval opening, gives rise to a series of condensations of the liquid contents of the Labyrinth. Here bristles, sand, and stones move about, and the exquisite harp of the cochlea, catching up the pulsations, carries them to the fibres of the auditory nerve, which conveys them to the brain and gives the mind the idea of sound The intensity and the rapidity of the nerve compressions are exactly in accordance with the aerial waves In the case of plurality of sounds, it is supposed that the single chain transmits vibrations in succession with wonderful rapidity and despatch Ear is thus but a delicate organ of touch

Aerial vibrations, proceeding from bodies in a state of tremor, stimulate the auditory nerve fibres in the internal ear
When this stimulation is carried to the brain, there is the sensation of sound

Hearing may be viewed as a modification of touch

(5) Sight

(5) Sight The organ of sight, the eye, is a compound optical lens in communication with a sensitive surface The eyeball is protected by being placed in the bony cavity of the skull called the *orbit* The entire eyeball moves in the orbit in all directions, and so many and delicate are the varia-

tions required in its movements, that six separate muscles—four straight (*recti*) and two oblique (the *superior* and *inferior*)—are employed in the work. The orbit is padded with fat; and the bone is pierced with several openings through which pass the nerves and blood-vessels. The eyeball as an optic lens is composed of investing membranes and humours, each being three in number, which constitute the outer shell and the inner transparent masses respectively.

To commence with the membranes. (1) The outermost coat of the eyeball is a tough, opaque, fibrous membrane behind, called the *sclerotic coat*, with a transparent glittering portion in front, called the *cornea* (commonly known as ‘the white of the eye’) The former is about four-fifths of the shell, while the latter, which is seen in front of the eye, one-fifth. The latter (the cornea) is more convex than it would be if the eye were a perfect globe and is covered outside (in front) by a delicate membrane called the *conjunctiva*, which is a continuation of the delicate mucous membrane lining the internal parts of the eyelids; its edges are slightly overlapped by the sclerotic coat. (2) The *choroid coat*, which contains a very great number of blood vessels and is lined inside by a layer of black pigment cells to absorb the superfluous light, covers the internal surface of the sclerotic coat. Near the point where the sclerotic merges in the cornea, the choroid coat ends by doubling up into a number of folds, called the *ciliary processes*, the outside of which the *ciliary*

The eye-ball is a compound optical lens composed of
 (a) three membranes, constituting the outer shell, and
 (b) three humours, constituting the inner transparent masses
 (a) The membranes are—
 (1) the sclerotic coat with the cornea,

(2) the choroid coat,

and (3) the retina

muscle covers (3) The *retina* or the nervous coat is situated next to the choroid, but does not extend so far, it is transparent and has a reddish hue owing to the supply of blood-vessels. In its centre is a *yellow oval spot*, the centre of which again is a thinner portion of the retina and is called the *central hole*. Next to the choroid (*i.e.*, meeting its pigment cells) and comprising about one-fourth the entire thickness of the retina, is a multitude of transparent, colourless, microscopic *rods* evenly arranged and packed side by side, like the seeds on the disk of a sun flower. Among them, at regular intervals, are interspersed larger and thicker rods called the *cones*. Delicate nerve fibres pass from the ends of the rods and cones, each expanding into a granular body, thence weaving a mesh, and again expanding into the granules. Last is a layer of fine nerve-fibres, and grey ganglionic cells, like the grey matter of the brain, whence filaments extend into the fibres of the optic nerve. The layer of rods and cones is to the eye what the bristles, otoliths, and Cortian fibres are to the ear. Indeed, the optic nerve itself is insensible to light, light excites the rods and cones, and they excite the end fibres of the nerve. When the reflection of an object falls on the yellow spot, where the rods and cones are thickest and longest and the fibres of the optic nerve are absent, vision is most perfect; whereas, when the image falls on the *blind spot* (the point of entrance of the optic nerve), where other layers of the retina besides the fibres of the nerve are absent, vision does not take place at all.

The optic nerve can be stimulated only through the rods and cones

The most sensitive portion is the yellow spot.

Moreover, it has been supposed that the cones are specially concerned in local discrimination, for they are densely packed in the yellow spot, where local discrimination is finest, and become less numerous and give way to rods towards the periphery. The diameter of the cones has been taken to correspond (roughly) to the limits of local discrimination.

Now to come to the humours. (1) The *aqueous humour* is a clear watery humour under the cornea. Next the aqueous humour is (2) the *crystalline lens*, which is a transparent lens, in form double convex, but more rounded behind than before. A thin, flat, circular membranous curtain (continuous with, though different in structure from, the choroid), called the *iris*, hangs vertically in the aqueous humour in front of the lens, and has a central orifice, termed the *pupil*, for the transmission of light. It has its external edge united with the choroid and sclerotic coats, and divides the space between the cornea and the lens into two chambers communicating freely with each other through the pupil. The iris is a muscular structure and has great power of contracting or expanding the pupil, so as to admit less or more light into the interior of the eyeball. Behind the crystalline lens (3) is the *vitreous humour*—a transparent jelly-like liquid—filling the whole posterior chamber of the eye, about two-thirds of the whole.

The above is a brief account of the mechanism of the eye. The optic nerves, or second pair, after uniting to form the optic commissure, in which

(b) The humours are—

(1) the aqueous humour,
(2) the crystalline lens,

and (3) the vitreous humour.

some of the fibres of each nerve cross to the opposite side, separate and enter the optic foramen at the apex of the orbit. They pass through the sclerotic coat on the inner side of and below the axis of the eye, then through the choroid and spread themselves out and are lost or terminate in the retina. The mode of action of the eye is that waves of ethereal motion, commonly known as rays of light, in passing through the cornea are converged, so as to pass through the aqueous humour and the relatively small pupil, and impinge upon the lens, which, by the convexity of its surface and its greater density towards the centre, serves to converge the rays and to correct the aberration. They then traverse the vitreous humour and are so refracted by the combined operation of the humours as to form an image on the back of the eye, where the transparent retina adjoins the choroid coat, the rods and cones then transmit the vibration through the optic nerve to the brain, thus producing the sensation of light. Sight, therefore, is but a modification of touch.

Sight may be regarded as a modification of touch

For distinct vision the rays of light must converge on the retina

We must remember here that, for distinct vision, the image must be formed, by due convergence of the rays, exactly on the retina, and not before or behind. The crystalline lens converges the rays of light which enter the eye and brings them to a focus on the retina. The cornea and the humours, too, act in the same manner as the crystalline lens, but not so powerfully. If the lens be too convex, it will bring the rays to a focus before they reach the retina ; if too flat, they will reach the retina

before coming to a focus. In either case, vision will be indistinct. If, for example, an object is seen clearly at nine inches off, all objects nearer and farther will seem indistinct, the convergence of their rays being behind and before the retina respectively. But there is a certain power of adjustment of the eyeball to render vision distinct at varying distances. This is done by a change in the eyeball effected by the ciliary muscle which, for near vision, contracts thereby compressing the vitreous humour and increasing the curvature of the lens, and, for distant vision, relaxes, thereby making the lens less convex and restoring its original shape more or less. The optical result is in the first case a more, and in the second case a less, rapid convergence of the rays, whereby the image is formed exactly on the retina, instead of either behind or before it. Thus, the nearer the object at which we wish to look, the more we contract the ciliary muscle and the greater the tension in the eyeball ; and, conversely, the farther off the object is, the less is it necessary for the muscle to act.

§ 6. IV. The Viscera. A detailed knowledge of this group is not of much psychological importance. The healthy play of the organs, constituting this group, produces the general pleasurable state of mind known as *coæsthesia* or general feeling of well-being ; while the unhealthy play of any of them produces the vague painful state of mind known as *malaise* or indefinite feeling of uneasiness.

IV The
Viscera

Their healthy
or unhealthy
condition
gives rise to
the general
feeling of
comfort or
discomfort.

The different parts of the nervous system are very closely connected with one another

§ 7. Bodily Organism and Mental Life. Our physical as well as our mental constitution is a complex whole, the different parts of which are most intimately connected with one another. And we have seen that mental activity in all its forms is directly connected with the cerebral processes and only indirectly with the functions of the other organs, such as those of digestion and respiration. The supply of nutrient matter through the blood is essential to all activities, and mental activity occupies such a prominent place as to require nearly one-fifth of the entire circulation of the body. Mental life involves the constant building up and breaking down of the cells which constitute the brain, and this process goes on generally in close correspondence with its different parts, as different mental exercises take place together or in quick succession

The cortical centres are closely connected with the other centres, rendering interaction and complex experience possible

We have seen that our entire nervous system is a closely united group of fibres and centres, communicating with one another. Thus, not only do we find the cortical centres closely connected with one another, but we find also that these are intimately connected with the basal ganglia and the spinal centres. And, if there is no absolute dividing line, not only between the different conscious activities, but also between the conscious and the subconscious or the unconscious, then we can easily understand how the exercise of one organ or function involves generally some exercise of the rest. Hence we find that even conditions of digestion, respiration, or weather influence our

mood or mental state at any time. As instincts pass on to desires, and these again give rise to volitions ; as spontaneous, reflex, and instinctive activities furnish materials for exercises of will ; and as, conversely, voluntary activities lapse, through habit, into secondarily reflex movements ; we can easily see how influence passes rapidly from one part of our nervous system to another to render such close correspondence possible.

We should remember in this connection that, while the cortical centres are concerned with mental functions, the spinal centres with the medulla oblongata are concerned with reflex or automatic movements. Owing, however, to the continuity of the nervous system, the former centres exercise a control over the lower centres, as when we restrain an impulse to sneeze. The function of the nervous system is evidently to bring about due adjustment of the organism to the environment by means of movements in response to stimulations from without. Sensations are thus but signals for responsive movements. And whenever a response is quickly needed, as in meeting the requirements of daily life, the lower centres alone carry on the work, without any intervention of the higher.

The nerve-fibres, as we have said, are mere conductors, while the grey cells are generators, of nervous force. What the character of this force is, is not precisely known. It resembles electricity to a certain extent, though it travels somewhat slowly ; its velocity being about 100 feet per second. When any nervous shock or tremor is

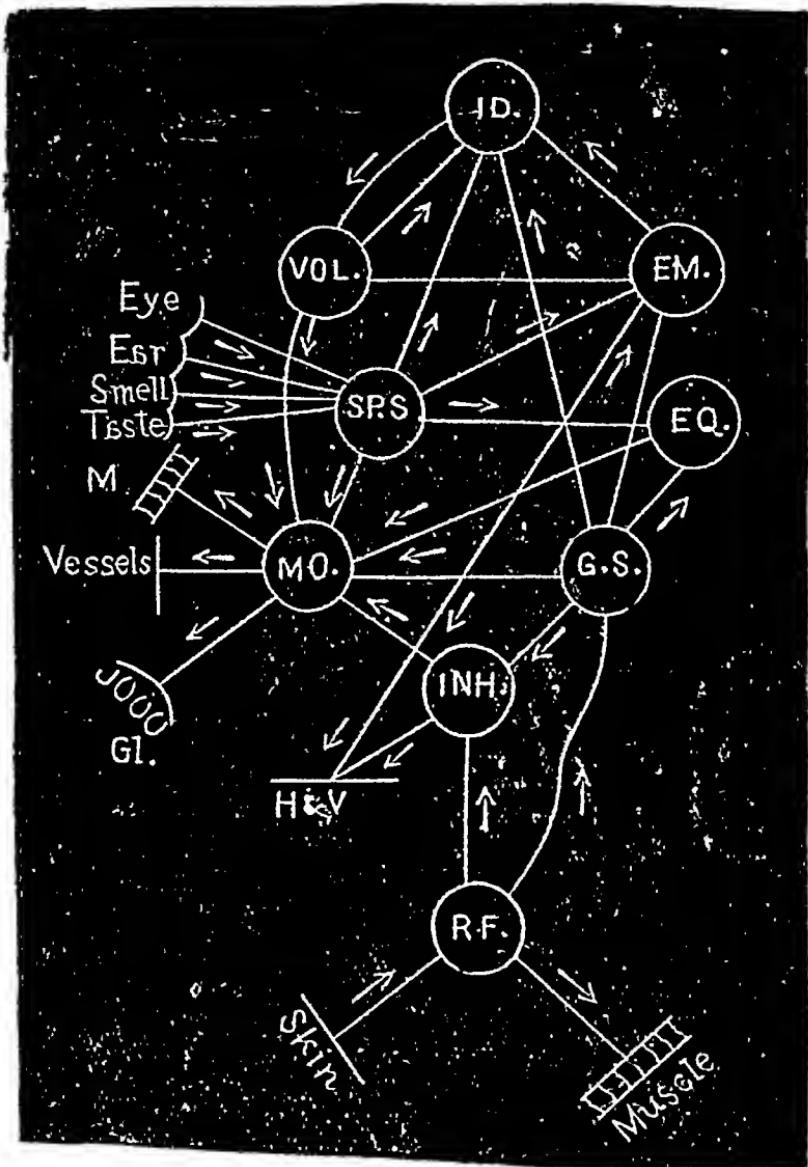
The cortical centres exercise at times an inhibitory function on the lower centres.

Owing to the interconnection of the different parts of the nervous system, a sensory stimulation is readily followed by

motor
innervation,
giving rise to
self adjustive
movements

Illustrations

carried by a sensory nerve to a sensory centre, the shock suffers a momentary retardation, but it issues from the centre with increased velocity, owing to the liberation of energy from the centre, due to the breaking down of certain chemical compounds into relatively simple ones. As sensory and motor centres are all interconnected by commissural or connective fibres, a nervous shock may be transmitted from a sensory to a motor centre and then to a motor nerve for the performance of the required movement. Where reflection, deliberation, and choice are involved, the higher centres of the cortex also come into play and exercise a stimulatory or inhibitory function, according to the requirements of a case. Thus, when I am told to raise my hand, the order is conveyed first to the auditory centre, and thence to the ganglionic cells of the cortex concerned with attention, comparison, volition etc. If endorsed by the will, the current or shock travels through the motor centres, basal ganglia, and spinal cord to the muscles which execute the required movement. Even if my will refuses to perform the suggested action, an instantaneous shock may be propagated, through these centres, to the required muscles, causing a momentary twitching, which may, however, be stifled by a quick inhibitory function of the higher centres acting in obedience to the will. The following diagram illustrates how the performance of different movements is brought about by the inter-connection of the several centres.



Id, Ideational centre ; *Vol*, Volitional centre ; *Em*, Emotional centre ; *Sp S*, Centres for special sensations ; *Eq*, Centre for sense of equilibrium ; *Mo*, Motor centre ; *G S*, Centre for general sensation ; *Inh*, Inhibitory centre ; *Rf*, Reflex centre ; *M*, Muscle ; *Gl*, Gland ; *H* and *V*, Heart and vessels. The lines show the association of one centre with the others, and the arrows indicate the direction taken by nervous impulses.

§ 8. Exercises

- 1 Discuss the advantage to be gained in psychological inquiry from the knowledge of Physiology.
- 2 How do you express the relation between psychical and physical phenomena, so as to give the fullest weight to the radical difference of the one from the other, without losing sight of their intimate connection?
- 3 What is the scope of Physiological Psychology?
- 4 What reasons are there for holding that the Brain is the organ of the Mind?
- 5 What various metaphysical hypotheses may be presupposed to explain the correlation of Mind and Body? Examine them briefly
6. Give a general account of the structure of the Nervous System
- 7 Describe the function of the Nerves and the Nerve Centres.
8. Does the same nerve carry currents both ways? How is the distinction between the two classes of nerves, afferent and efferent, discovered?
- 9 Explain the practical bearing of the correlation of Mind and Body.
- 10 Discuss the proposition that Mind and Nervous Action are two faces of the same Fact
11. Explain precisely in psychological language what you understand by (1) the influence of the Body over the Mind, and (2) the influence of the Mind over the Body
- 12 Write a brief epitome of the different views that have been held concerning the "seat of the soul" and discuss in what sense, if any, such an inquiry is scientific.
- 13 Describe the senses of Taste and Smell; and give an account of the organ of Touch
- 14 Give a description of the organs of Vision and Hearing.
- 15 Describe briefly the phenomena included under the head of Muscular Sense. What part does the Muscular Sense play (α) in the direction of the eyes and (δ) in the maintenance of the bodily equilibrium?

CHAPTER III.

PSYCHOLOGY AND THE SCIENCES

§1. Character and Forms of Scientific Knowledge Scientific knowledge is to be distinguished from empirical. Though knowledge is gained in both cases by means of the senses, yet special appliances and precautions are employed in Science to render knowledge accurate. Science is thus the rationalized and perfected form of common knowledge : it is popular or empirical knowledge reduced to a precise and systematic form. But, while empirical or every-day knowledge is concerned with the individual, science is concerned with the general, while the one is precarious, the other is certain and exact ; while the one proceeds without any order or system, the other proceeds methodically or systematically. Science, as Kanada observes, is knowledge "free from imperfection." (वैशेषिक विद्या.) [*Vaiśheṣikā Aphorisms*, Bk. IX, ii, 12, Gough's edition, p. 296] The characteristics of a science, accordingly, are (1) generality, (2) certainty, (3) accuracy, and (4) system. Let us say a few words with regard to these features.

Scientific knowledge, as distinguished from empirical, is precise and systematic.

Characteristics of Science

It is essentially

(1) general

(1) Our every-day knowledge is concerned with the concrete and the individual : we are ordinarily interested in our own home, friends, property, and country, and their peculiarities or distinguishing features. But science is not primarily concerned with individual things or peculiarities ; it is

interested in general features and relations calculated to throw light on many facts of a kindred nature. Thus, in Physics or Chemistry we are not so much interested in a particular instance of light or heat or of this or that compound, as in the general features and laws which explain such individual instances. The aim of a science always is to discover the general conditions or laws which underlie a definite class of facts constituting its subject-matter. It tries to generalize knowledge as much as possible. General truths are (a) theoretically as well as (b) practically useful. (a) They condense information, relieve memory, and satisfactorily explain seemingly diverse facts by establishing, as it were, a family relationship among them. (b) They alone can safely guide us in our expectations, inferences, and practices. Hence is it that, however much our ordinary interests may centre round individual objects or cases, science is interested in generality.

(and general truths are both theoretically and practically useful),

(2) certain,

(2) Scientific knowledge must always be certain or unquestionable, while common knowledge may often be of a doubtful character. Knowledge, when based on facts and resting on rational grounds, comes within the province of Science. Mere opinion or prejudice can never constitute scientific knowledge. The end of science being truth, only that form of knowledge can be called scientific the validity of which we are quite sure of.

(3) accurate,

(3) Scientific knowledge must also be accurate and precise, and accuracy and precision can be attained only when knowledge is carefully examined.

and verified. Thus, science always implies the bestowal of sufficient care and attention on a definite subject to secure the exact correspondence between our ideas and facts. It involves the employment of logical principles and methods to ensure the correctness of thought.

(4) Scientific knowledge must further be systematic and methodical. Every science has a definite subject-matter of its own, within the limits of which its facts and principles constitute a systematic whole. Random survey of all facts which happen to come before the mind is not at all conducive to scientific inquiry. To put together, for example, facts about digestion and facts of our mental life would serve no useful purpose, it could only perplex and confound the understanding. Division of themes or fields of inquiry is convenient to the human mind and so conducive to the growth of the sciences themselves. Every science has thus a definite province of its own ; and, within its province, it studies facts in a definite order and in their mutual bearing. It has, as Bain observes, "A certain *order* or arrangement of topics, suitable to its ends in gathering, in verifying, and in communicating knowledge". (*Logic*, I, p. 24).

Science is often distinguished from *Art*. A science is a systematic inquiry into the laws and principles governing a definite group of facts which constitute its subject-matter. Thus, Botany, as a science, aims at discovering the laws governing plants ; and Physics aims at deciphering the laws of physical phenomena. An art, on the other hand,

and (4)
systematic.

Distinction
between
Science and
Art - a
Science
discovers
principles
governing a
particular
subject-
matter,

while an Art
lays down
rules for the
attainment of
a certain end.

lays down rules for the attainment of a certain end. Surgery, for example, as the art of healing by manual operation, is guided by certain rules relating to the use of surgical instruments and the application of bandages. Similarly, there are arts of dyeing, painting, and printing—all guided by definite rules for the attainment of certain results. "The distinction between science and art," says Thomson, "is, that a science is a body of principles and deductions, to explain some object-matter; an art is a body of precepts, with practical skill, for the completion of some work. A science teaches us to know, and an art to do, the former declares that something exists, with the laws and causes which belong to its existence, the latter teaches how something must be produced" (*Outlines of the Laws of Thought*, pp 11-12) An art, however, to be sure and successful, should be based on scientific knowledge. Surgery, for example, as it is practised by the village barber, is more or less precarious and attended with risks, but when it is based on anatomy, physiology and hygiene, it is comparatively sure and successful. When Art is thus based on Science, it is called *Scientific Art* or *Practical Science*.

An Art based
on Science is
known as
Scientific Art
or Practical
Science

Distinction
between
Positive and
Normative
Science the
one examines
facts as
they are with
reference to
laws,
the

Sciences are distinguished into *Positive* and *Normative* according as they examine facts as they are with a view to ascertain the laws which govern them, or they investigate the character of the norm or ideal which should regulate our conduct for the attainment of a definite end. Thus, Physics, Chemistry, Botany, and Physiology are positive sciences,

examining a particular group of facts to find out their laws, while Ethics, Aesthetics, and Logic are normative sciences inquiring into the ideal of virtue, beauty, or truth, and not simply observing and analysing the imperfect experiences of life. A distinction is also drawn at times between a *Practical* and a *Normative Science*. It is urged that while the former considers merely the means necessary for the realization of a particular end, the latter inquires into the character of the end itself which serves as the norm, ideal, or standard in a definite sphere of activity. As Prof. Mackenzie observes, "It is the business of a normative science to define an ideal, not to lay down rules for its attainment." (*Manual of Ethics*, p. 10) Thus, Logic and Ethics are normative sciences, since they aim at determining the character of the ideal of truth or virtue, while Medicine and Engineering are practical sciences which aim at the employment of suitable means for the attainment of a definite end. Ethics, as Mackenzie observes, is scarcely a practical science, since "it must content itself with understanding the nature of the ideal and must not hope to formulate rules for its attainment" (*Ethics*, p. 9); and Medicine and Engineering can scarcely be regarded as normative sciences, for their aim is not so much the determination of the ideal of health or mechanism as the adoption of requisite means for the promotion of health or the execution of work under definite circumstances. Logic may be regarded as both normative and practical in as much as it investigates the character of the ideal, which we must strive to

other inquiries into the character of the ideal with a view to regulate conduct.

Distinction between Practical and Normative Science : while a Practical Science determines means for the attainment of a definite end, a Normative Science investigates the character of the end itself as an ideal of conduct.

attain that we may be free from error and fallacy, and at the same time lays down rules by means of which the end may be achieved

These distinctions, however, are not absolute

It should be remembered, however, that the distinction between Science and Art, or between Theoretical and Practical, Positive and Normative, Sciences is rather relative than absolute. Science and Art, for example, generally go together. If, as Bacon says, knowledge is power, we are apt to apply it to practice, and thus Science becomes Art. Again, if an Art is to be certain and useful, it should have a scientific basis. Likewise, a thorough examination of materials by a Positive Science generally prepares the way for the discovery of the true ideal constituting the subject-matter of an allied Normative Science; and the delineation of the ideal in any case naturally leads to a Practical Science which tries to formulate rules and devise means for its attainment. The interconnection of human faculties and tendencies ultimately explains also the interconnection of the different branches of knowledge and practice. The unity of the human mind, no less than the unity of the world, accounts for the final unity of the Sciences and Arts.

§ 2 Is Psychology a Science? It has been urged by some that Psychology is impossible as a science, since the methods essential to its construction cannot be employed. Others, though admitting that Psychology is possible, contend that it is at most an imperfect science, for all the conditions of valid scientific knowledge are not satisfied in this branch of study. Thus, to determine the

character of Psychology as a subject of study, it is desirable that we should notice the chief objections urged against it. Let us, therefore, examine the principal objections here, with a view to settle its claim to be regarded as a science.—

Objection I. It has been urged that Psychology is impossible, for introspection, on which it ultimately rests, is itself impossible. It is contended that the mind cannot be in two dissimilar conditions at one and the same moment, the presence of a mental state thus precludes at the time a second mental exercise in the shape of Introspection. As Comte says—"In order to observe, your intellect must pause from activity, yet it is this very activity which you want to observe. If you cannot effect the pause, you cannot observe; if you do effect it, there is nothing to observe". (Miss Martineau's Translation, I, p 11.) Dr. Maudsley also supports the same view "In order," he writes, "to observe its own action it is necessary that the mind pause from activity, yet it is the train of activity that is to be observed." (*The Physiology of Mind*, p 17.) Thus, it is said, if we want to observe a mental phenomenon, say an outburst of passion, the emotional condition is to be replaced by intellectual reflection.

Refutation The objection overlooks the following facts:—(1) It is a possibility on the part of the mind to attend to its own states. This is supported by the facts (a) that repetition of an experience begets increased familiarity with it, (b) that an important condition of retention and reproduction is,

Objections to Psychology as a science.

I Introspection is impossible.

The objection is suicidal and inconsistent with facts.

not merely previous experience, but also the direction of attention to it, and (c) that vivid impressions engage our attention even against our will. As Father Maher observes, "Life could be made happy without much difficulty if our disagreeable states and experiences would vanish when we turned to observe them, but unfortunately cold, hunger, thirst, and disease, the pains of muscular strain, and of tooth-ache are not such obliging visitors" (*Psychology*, p. 20)

(2) Even if it be conceded that we cannot observe a mental phenomenon exactly at the time of its occurrence, still it must be admitted that we can subsequently recall our past experience and subject it to critical examination. Introspection is at least retrospection. It may even be said that retrospection really involves introspection, for "it is the *present* representation of the past state which is examined, and only *while actually present to the mind* can it be the subject of observation." (Maher, p 21.)

(3) The objection, to be intelligible, involves an appeal to consciousness and thus proves, instead of disproving, that Introspection is possible, so that we can attend to what goes on in our own minds. "You cannot," says Caird, "enter on a criticism of the instrument of thought without taking for granted, at least, its adequacy for the work of self-criticism." (*Philosophy of Religion*, p 4.)

Objection II. Even if Introspection be admitted as possible, still it cannot give us a general

knowledge of mind essential to science. (Cf. Maudsley, p. 19.)

Refutation. (1) A person, by observing his own mind, may understand to a great extent the minds of others, much in the same way as an anatomist, by dissecting a single specimen, may understand the structure of a species. As Martineau says, "Kindred natures alone can interpret one another; obviously, because they have in themselves the living key to the hieroglyphics of emotion." (*Types of Ethical Theory*, II, p. 29) Identity of constitution enables us safely to generalize from a single instance, relying on the Principle of Ground and Consequent. And, even in the case of partial dissimilarities, we may draw conclusions by Analogy, as the points of similarity are numerous and important. [*Vide Principles of Logic*, II, Chap XXII, § 5 and § 6] (2) The several objective methods, described above, remedy any defect which may still lie in the subjective or introspective method, and enable us to arrive at correct generalizations.

Objection III. A kindred objection is that Introspection is limited to a single observer, "a witness whose evidence can be taken by no one but himself, and whose veracity, therefore, cannot be tested" (*Maudsley*.)

Refutation. The objective methods remove the defect.

Objection IV. The objective method is also defective, in as much as it presupposes the subjective: any defect in the latter necessarily vitiates the former as well.

general knowledge of mind.

The objection overlooks the value of Examples and Analogy as means of proof, and ignores what can be achieved by the objective methods.

III. The validity of Introspection cannot be tested.

The objective methods remedy the defect.

IV. The objective method, depending on the subjective, shares in its defect.

The objective method does not necessarily presuppose the subjective, the two methods may go together

Refutation. The subjective method does not necessarily precede the objective, the two methods may practically be simultaneous. To notice in another a certain psychosis, it is not essential that I must have already experienced it in myself, it is sufficient if I be susceptible to it. My attention may be drawn to a psychical phenomenon in another, through its expression, *even though I did not independently experience it before*. The expression, no doubt, suggests the connected mental state in me, but it reflects, at the same time, the same condition in the person observed. But for the expression, I might not have known the psychosis at all. The expression at once awakens in me the connected psychical phenomenon and reveals it in another. As Martineau says—"My fellow is merely myself over again, and is, simply on that account, understood by me at a glance. The visible life of my own *double* throws off a light both ways,—on *his* inner nature which it immediately expresses, and on *mine* which it mediately exhibits and repeats; and there is certainly something very wonderful in that sympathetic affinity between one mind and another which makes mutual intelligence a thing of lightning, and interprets natural signs that have never been learned." (*Types*, II, p. 31.)

V Consciousness is not always reliable

Objection V. It is said that the declarations of consciousness are not always reliable, since they are often misleading and erroneous. The madman's delusion is cited by Maudsley as a prominent example.

Refutation. (1) Illusions and hallucinations are

but exceptional contingencies which can never affect a Science. (2) Even if we take them into account, the objection rather proves the reverse. If, for example, a person says that he constantly sees spectres or that his limbs are made of glass, we pronounce him insane because, believing in his statements, we discover an incongruity between his consciousness and facts. In fact, the pathology of the brain, to be scientifically correct, must assume that the madman's consciousness, though out of harmony with facts, is perfectly reliable.

Objection VI. It is urged that Psychology is at best an imperfect science, since it is based on mere Observation and does not share in the advantages of Experiment.

Refutation. However true the objection might be against old systems, it has no force against modern psychology. Recently Fechner, Weber, Galton, Ribot, Bigham, Munsterberg, and others have employed experiment on an extensive scale to study mental phenomena and their relation to stimuli and circumstances.

Objection VII. The very fact that psychologists are not agreed in their views, shows that Psychology is not a science in the proper sense of the term. As Maudsley says—"There is no agreement between those who have acquired the power of introspection."

Refutation. The objection is based on a confusion of two distinct conditions of scientific knowledge—viz., (1) the observation of facts and (2) their explanation. With regard to the first (1),

Consciousness cannot be questioned without self-contradiction.

VI. Psychology, resting on observation does not share in the advantages of experiment
The objection has no force against modern psychology, which largely employs experiment.

VII Psychologists are not agreed in their views.

Though they differ in their explanations, yet they agree as to facts.

we generally find singular agreement even among writers of opposite schools. With regard to the second (2), there are, no doubt, striking differences ; but differences we must expect, so long as explanations are based on hypotheses It is not a peculiarity of Psychology , the history of every science illustrates the same fact

§ 3 Science, Philosophy, and Psychology These are closely connected. As we have already explained the character and scope of Science and Psychology, let us now say a few words with regard to the character and scope of Philosophy with a view to indicate its relation to Science and Psychology. Philosophy in its widest sense is the relationalized view of things existing or occurring ; "the thinking consideration of things" (Schwegler). It is "the search for a comprehensive view of nature, an attempt at a universal explanation of things" (Weber) As Keats says—

"Philosophy will clip an angel's wings,
Conquer all mysteries by rule and line
Empty the haunted air and gnomed mine—
Unweave a rainbow"

Philosophy may, accordingly, be defined as the ultimate rational explanation of things, obtained by discovery of the reason or cause of their existence Ueberweg defines it as the "Science of principles," regarding it as conversant, not with any special or limited province of things, but with the nature, laws, and connection of whatever actually is Philosophy may thus be said to be conversant about God, Nature, and Man , and all the sciences, investi-

In the widest sense,
Philosophy is
the rationalized view of
things

gating different departments, come within its pale. Philosophy is thus equivalent to Science in its widest sense, being but a comprehensive and systematic view of things. Both Science and Philosophy are the expression of Reason in its attempt to understand and explain the universe and both of them are characterized by pure love of truth apart from utility. Again, as the essence of truth and reason is to be found in consistency, the attainment of consistency becomes the chief end of Philosophy. And to establish a relation of consistency among facts is to fraternise them, and to fraternise is to assimilate, to explain, to rationalize, or to philosophize.

Though, in the widest sense, Science is synonymous with Philosophy, yet, in a limited sense, Science is to be distinguished from it. The scientific spirit ordinarily manifests itself in connection with a definite subject-matter; and hence it becomes crystallised, as it were, in the form of a particular science. This division of Science into several sciences is both useful and convenient; but these sciences themselves would be wanting in system or organic unity if no connection is established among them by general reflection. This reflection, which unites the sciences by an inquiry into their ultimate ground, is Philosophy. Such a reflection is more or less due to the natural craving of the human mind, which wants to have a peep into the mysteries of this vast and manifold universe; and such an inquiry, moreover, cannot but be morally elevating, since, in undertaking to explain the real constitution of

Philosophy is equivalent to Science in its widest sense.

In a limited sense, Science is Philosophy specialized : Science is a systematic inquiry into a definite department of knowledge.

Philosophy inquires into the ultimate ground of the Sciences

the universe, it indicates the true end of life and the ideal of human conduct. Thus, Cicero exclaims—

“Philosophy, thou director of our lives,
Thou friend of virtue and enemy to vice !
What were we, what were the life of
Man at all, but for thee !”

Philosophy is thus the necessary expression of a thinking mind. It is an attempt at an ultimate organization of knowledge. It thus includes within its province all forms of knowledge. As the sciences systematize individual facts or phenomena by discovering their laws, so Philosophy systematizes the sciences by discovering their inner meaning and ultimate basis. The sciences examine but the phenomenal side of things, trying to discover their laws and connection, while Philosophy takes a comprehensive view of the whole system of things, interpreting the phenomenal by reference to the central and real. The province of Philosophy thus covers the entire universe—Man, Nature, and God.

The sciences systematize facts, while Philosophy systematizes the sciences

The sciences examine the phenomenal aspects of things, while Philosophy inquires into their inner meaning and significance

Philosophy covers (1) the Philosophy of Mind,

(2) the Philosophy of Nature, and

the Philosophy of the Absolute

It includes—(1) the *Philosophy of Mind* which, availing itself of the results of Empirical Psychology, follows it up with Rational Psychology discussing the real nature of the mind or soul, (2) the *Philosophy of Nature* which, using the results of the different (physical) sciences, supplements them by Rational Cosmology inquiring into the ultimate character of the external world and its relation to the mind, and (3) the *Philosophy of the Absolute* which employs the results of the Philosophy of Mind and the Philosophy of Nature to discover the

Supreme Cause, that explains the entire universe, and thus to effect a true unification of knowledge—the goal of all Philosophy.

It may be mentioned here that Philosophy is sometimes used in the sense of Mental Philosophy, as distinguished from Natural Philosophy, as when the 'Philosophy Course' is contrasted with the 'Science Course'. Used in this sense Philosophy includes every thing which we know of mind, as revealed in the facts of consciousness, as well as all that can legitimately be inferred regarding the true nature of things from these data. Philosophy thus covers Empirical Psychology (with cognate sciences—Epistemology, Logic, Aesthetics, Ethics, Sociology, Politics, Education) and Ontology or Metaphysics (including Inferential Psychology, Cosmology, and Theology). In the former we are concerned with the investigation of the facts of consciousness—classifying them, discovering their conditions, and formulating their laws; in the latter, we theorize about the real nature and resources of Mind, Nature, and God, so far as they are warranted by the phenomena present before the mind. The former is thus a science dealing with facts or phenomena and proceeding by way of observation, analysis abstraction, and generalization; the latter is a science dealing with realities or the necessary implications of the facts of consciousness, and proceeding by way of inference and hypotheses based on such facts. The method of the former is mainly inductive; that of the latter, mainly deductive.

Philosophy, though thus including Psychology,

Philosophy is at times used in the sense of mental Philosophy,

including Empirical Psychology and Metaphysics.

Empirical Psychology studies mental phenomena and their laws, while Metaphysics inquires into ulterior realities.

Psychology interprets knowledge from the subjective stand-point, while Philosophy interprets it from the objective or absolute

should be distinguished from it. Both *Philosophy* and *Psychology* have to do pre-eminently with knowledge. But, while Psychology investigates and interprets knowledge as a mental phenomenon, attempting to discover its conditions, laws, and course of development, Philosophy uses knowledge as the interpreter of the world and thus aims at establishing a harmonious relationship among the facts constituting the universe. Philosophy is not content with the mere knowledge of the external or the internal world; this knowledge, or interpretation of the world, becomes in its turn the object of critical examination in Philosophy. If Psychology interprets knowledge from the subjective stand-point, Philosophy interprets it from the objective or absolute

Philosophy, aiming at a rational unification of knowledge and belief by means of a metaphysics, may proceed

either (a) from theory to facts (the ancient method)

It is clear from the preceding remarks that Philosophy aims at a rational unification of knowledge and belief by means of a metaphysics, and, even in the continent of Europe, such unification is attempted by means of metaphysics constructed on a strictly scientific basis. This unification is effected in either of two ways. (a) We are first called upon to believe in a system of the universe which we are next to test by an appeal to facts: a theory first, and then its verification, a hypothesis first, and then the deduction of facts from it, a belief first, and then its rationalization, a metaphysics first, and then the sciences supporting it. This view generally prevailed in ancient as well as in the comparatively early stages of modern philosophy. (b) Or we may be required first carefully

facts to theory (the modern method).

to survey the facts as elucidated in the different sciences, and then to institute a search into the mysteries of the universe · a proper study of facts first, and then a theory for finally and completely explaining them , knowledge first, and next conviction based on it. Thus, according to this view, metaphysics supplements and completes the work of the sciences, belief supplements reason. This view is widely prevalent now-a-days.

§ 4 Relation of Psychology to the Other Sciences. Let us consider the relation in which Psychology stands to the other sciences ; and, in doing so, we should ascertain, besides the general relation, the special relation it bears to some of the sciences. Psychology may thus be said to be related (1) generally to the other sciences and (2) particularly to some branches of knowledge

I *The General Relation.* (1) In a sense, Psychology is superior to every other science, in as much as the subjective aspect of every science comes within the province of Psychology every science has to do with knowledge which, as a mental process, it is the business of Psychology to explain. (2) Viewed differently, Psychology is co-ordinate with the other sciences like every other science, it has a distinct and definite subject-matter of its own—viz, mental phenomena.

II *The Special Relation* Psychology as a theoretic science is, no doubt, concerned with the study and explanation of *actual* mental processes , but it forms the basis of (a) many *practical* sciences, such as (1) Education, (2) Politics, (3)

I *General Relation*
 (1) In a certain sense, Psychology is superior to the other sciences, since the subjective aspect of their subject-matter comes within its province ;
 (2) while, in another sense, it is co-ordinate with the other sciences, as, like them, it has a definite province of its own.
 II *Special Relation.*
 Psychology constitutes

the foundation of some
(a) practical and (b) normative sciences

Rhetoric, and (4) the Fine Arts (including Literature) (b) Some *normative* sciences, such as (1) Logic, (2) Ethics, and (3) Ästhetics, are also based on Psychology. To influence the mind of another or to cultivate a mental faculty with success, we must know its nature and mode of operation. The discovery of the appropriate means or of the correct ideal, for securing a mental result, depends on a careful examination of the facts of consciousness.

Logic and Psychology are closely connected, as they influence each other,

but there are important points of difference between them
The points of difference are

(1) Psychology is wider than Logic

§ 5 Logic and Psychology. These branches of knowledge are also closely connected, in as much as the principles of Logic are employed in Psychology, and Psychology too underlies Logic, in as much as a knowledge of the laws or principles necessary for the attainment of truth can be obtained only by a careful examination of the facts of consciousness. Though, however, Logic and Psychology are thus connected, yet their provinces are distinct.

(1) The province of Psychology is, in a certain sense, *wider* than that of Logic. Logic, no doubt, may be said to be wider than Psychology, for logical principles are applicable, not to Psychology alone, but to every science. But Psychology, as investigating all mental phenomena, has a wider scope than Logic. Psychology examines intellectual, emotional, and volitional factors, in the department of intelligence, again, Psychology investigates all intellectual processes—all forms of knowledge—immediate and mediate, perceptual, imaginative, and conceptual; but Logic has nothing to do with

feeling and will, and in the department of intelligence also its province is comparatively limited. Logic is concerned only with thought: it has nothing to do with immediate knowledge; perception and imagination are outside its scope.

(2) Psychology has to do with the *mental processes*—the operations of intellect, feeling, and will. Logic, however, has nothing to do with the mental processes; it is concerned only with the *products of thought*. Thus concepts, judgments, and inferences as products of comparison come within the scope of Logic, while the processes of comparison fall within the province of Psychology; it may consider the mental products, but only as throwing light on the corresponding mental processes.

(2) Psychology is concerned with mental processes, while Logic with mental products.

(3) Psychology is a *theoretic* and *positive* science, concerned with the study of what is; Logic, on the other hand, is a *practical* and *normative* science, concerned with the investigation of what ought to be. The one studies the actual; the other aims at the ideal. All mental processes—whether perfect or imperfect, correct or incorrect—come within the province of Psychology. But Logic investigates the conditions of valid thoughts and lays down rules for attaining them; it does not inquire into the actual forms in which we do think, whether aright or fallaciously.

(3) Psychology is a theoretical and positive science, while Logic is practical and normative.

(4) Even concepts, judgments, and reasonings are not exactly the same when considered in Psychology and in Logic. A judgment, for example, psychologically considered, involves some elements

(4) The contents of Logic are more abstract, characterized by in-

Intellectual quality alone, while those of Psychology are more concrete, being tinged with elements of feeling and volition as well.

(5) Belief, involved in a judgment, is estimated differently in Logic and Psychology. In the one it rests only on proof, while in the other, on diverse factors.

I Their Connection
Ethics and Psychology are closely connected, as moral inquiry involves careful and impartial examination of the facts of consciousness at every

of feeling and will. But a judgment, logically considered, is an abstract relation divorced from these natural concomitants. A logical judgment is simply a relation between two ideas or terms, without any warmth of feeling or a prompting to activity.

(5) If belief be regarded as entering into every judgment, it assumes a different form as the judgment is considered psychologically or logically. Psychologically our belief in a statement or proposition is influenced by various factors—intellectual, emotional, and volitional. In fact, in some instances our belief amounts to superstition, having more an emotional than a rational basis. But belief as accompanying a judgment, logically considered, is determined wholly by its probative force. When we believe in a proposition in Logic, we do so because it necessarily follows from certain data. Belief in this case depends solely on evidence.

§ 6. Ethics and Psychology

Though distinct, these sciences are also very closely related.

I. *Their Connection.* The establishment of moral distinctions, the discovery of ethical principles, and the ascertainment of the conditions of morality must be conducted on a psychological basis. The nature of the moral standard, the problem of the freedom of will, the enumeration and classification of impulses, and the significance of duty and moral law or end can be solved or determined only by a careful examination of the facts of consciousness. Whether, for example, moral judgments are directed to impulses or outward acts and

their results, whether the judgments are based on an estimate of pleasure or moral worth, whether life is regulated by feeling or by reason, and the connected questions of the different kinds of pleasure and degrees of merit or demerit, the relation of feeling to reason, the character of conscience, *etc.*, cannot be answered without cautious mental analysis. As Mansel has said, "The value of every ethical system must ultimately be tested on psychological grounds." (*Prolegomena Logica*)

II. *Their Difference* (1) While Ethics and Psychology are thus closely connected, their spheres are not co-extensive : Psychology examines all the facts of our conscious life—intellectual, emotional, and volitional ; but Ethics is practically limited to the department of will. Moral facts, no doubt, come within the province of Psychology ; but it examines them simply as mental phenomena, without any reference to their moral significance. Similarly, Ethics, in elucidating the facts of our moral life, takes into account other connected mental processes, but these are considered only by reference to their moral bearing and not merely as psychical phenomena.

(2) Psychology, as already explained, is a theoretical science concerned with the explanation of the actual facts of consciousness, while Ethics is a normative science concerned with the investigation of the ideal or standard of moral conduct. The one takes into account all psychoses, whether perfect or imperfect, while the other aims at determining the conditions of moral perfection with a view to the

II. *Their Difference*.
(1) Psychology is wider than Ethics.

(2) Psychology is concerned with the actual, while Ethics, with the ideal.

attainment of virtue and the avoidance of sin. "Ethics," as Stout remarks, "inquires how we ought to will, not how we actually do will." (*Psychology*, p. 6.)

(3) The relation of Ethics to Metaphysics is more close than that of Psychology to Metaphysics.

(3) Ethics is more intimately connected with Metaphysics than Psychology. We can never estimate the true worth of the facts of our moral life without judging them by reference to the real constitution of things · to prove these facts as valid or to prove them as illusory equally involves an appeal to the true order of the universe Psychology, however, is restricted to the interpretation of the facts of consciousness, without raising metaphysical questions. The one is constrained to ascertain the real constitution and the ultimate significance of the universe, as affecting our destiny and determining our duties , the other is content with explaining the mental phenomena and deciphering their laws.

§ 7. AÆsthetics and Psychology Their relation is analogous to that of Ethics to Psychology.

I. Their Connection
The character and conditions of the æsthetic judgment and sentiment can be determined only by careful psychological analysis

I. *Their Connection* The close connection of AÆsthetics and Psychology is evidenced by the fact that AÆsthetics, as the science of the æsthetic sentiment, can discover its essential conditions only by a careful examination of the facts of consciousness. Kulpe writes with regard to modern æsthetics— "The two groups of facts with which it has primarily and most directly to do are the æsthetic judgments of pleasure and displeasure, and art and artistic production." (*Introduction*, p. 81.) Now, the precise character and conditions of the æsthetic judgment and the peculiarities and factors of the

artistic temperament and production can be determined only by a careful psychological investigation. "The objection," observes Kulpe, "so often urged against a scientific æsthetics, that judgments of taste are purely individual in their nature, and that therefore anything in the way of an universally valid proposition in æsthetics is an impossibility, is met by the fact that, so far, in all cases where it has been possible to examine the æsthetic judgment under unexceptionable conditions, *i. e.*, experimentally, no trace has been found of 'purely individual' taste, or even of irregularity in the formulation of taste-judgments. On the contrary, there has been manifested a most surprising agreement in æsthetic judgment ... Diversity of interests, differences in the associative factor, in attention, and even in the actual object of observation, are conditions which readily account for divergence of 'taste' in every-day matters." (*Ibid.*, p. 90.) If, then, there are general laws governing the æsthetic sentiment, these can be known only through cautious mental analysis. It is close observation of the facts of consciousness alone which can reveal, for example, that 'harmony' is the *sine qua non* of Beauty or that 'immensity' is indispensable to Sublimity. The æsthetic sentiment being a mental effect, its nature and conditions can never be known but by an inquiry into the working of the human mind.

II. *Their Difference.* (1) The province of Psychology is evidently wider than that of *Æsthetics*. Psychology examines all mental phenomena—intellectual, emotional, and volitional; while *Æs-*

II. *Their Difference*
(1) Psychology is wider than *Æsthetics*.

æsthetics is practically limited to the examination of a department of feeling, *viz.*, the sentiments of Beauty and Sublimity. In explaining the conditions and characteristics of these sentiments, æsthetics, no doubt, takes note of the underlying æsthetic judgments and other connected mental processes, but these are considered only so far as they throw light on the æsthetic experience, and not simply as mental phenomena.

2) Psychology is concerned with the study of the actual facts of consciousness, while æsthetics is concerned with the investigation of the ideal of Beauty and Sublimity

(2) Psychology, as a theoretical science, is concerned with the exposition of the facts of consciousness as they actually occur, without any reference to a standard; while æsthetics, as a normative science, inquires into the character of the æsthetic ideal which ought to guide our æsthetic experience. The one examines all subjective processes, whether in or out of conformity with the æsthetic standard, while the other aims at properly regulating our æsthetic sentiment by laying down the conditions of its ideal.

3) Psychology examines only the subjective conditions of the æsthetic sentiment, while æsthetics examines the objective conditions as well

(3) While Psychology investigates only the subjective conditions of the æsthetic sentiment, æsthetics inquires into its objective conditions as well. æsthetics as a science seeks to determine not merely the psychical, but also the real, conditions on which Beauty and Sublimity ultimately rest. As Stout remarks—"Psychology has nothing to do with the distinction between beauty and ugliness, as such. It only inquires how things actually come to appear beautiful or ugly, it has no concern with such questions as whether what appears beautiful really is beautiful, or how the

distinction between beauty and ugliness is constituted. Perhaps what appears beautiful therefore is beautiful; if this be so, then psychology solves the problems of æsthetics, but it does so only by accident. It cannot itself show that it has solved these problems. In order to do so, it would have to prove that in æsthetics appearance and reality coincide; but whether this be true or false, it is certainly beyond the province of psychology to discuss the question." (*Manual*, p. 6.)

§ 8 Metaphysics and Psychology. The relation of Psychology to Metaphysics is also very close. Their provinces are, no doubt, distinct: the one considers the *subjective* or *mental aspect*, while the other, the *objective* or *real aspect*, of things, the one explains mental phenomena, while the other inquires into the real nature of mind and objects. But though their provinces are thus distinct, yet they are closely connected. The connection may be established thus:—

(1) A metaphysical explanation of mind must depend on the prior psychological knowledge of mental phenomena: these phenomena as manifestations of the mind can alone throw light on the nature and operations of the real mind.

(2) Metaphysics as the science of realities inquires into the real nature of every thing—the ulterior character, for example, of mind, matter, space, time, force, cause. The several 'Sciences' study, but the phenomenal aspects of these, while Metaphysics tries to discover their real meaning or significance. But Metaphysics proceeds, not so

I. *Their Difference.*
Psychology is concerned with the subjective or mental aspect, while Metaphysics with the objective or real aspect, of things.

II. *Their Connection:*

(1) Metaphysical explanation of mind requires a psychological knowledge of mental phenomena.

(2) Metaphysics as the science of realities must rest on a psychological examination of the grounds of knowledge.

much by observation and induction, as by hypothesis and deduction. Abstract reasoning, and not experiment, predominates in Metaphysics. The materials for such reasoning are supplied by phenomena which, even when natural or physical, involve a reference to the processes of a knowing mind. A correct interpretation of phenomena thus implies an accurate knowledge of psychical processes. Such knowledge is furnished by Psychology, which also discovers the conditions of valid reasoning.

(3) Psychology, estimating the character and limits of mental capacity, is an indispensable pre-requisite for metaphysical inquiry,

(3) Moreover, the limits of human knowledge are always relative to the capabilities of the human mind. Our estimate of the nature and range of our faculties determines also our estimate of the universe. Now, Psychology investigates the working of the human mind and so reveals the character and range of its powers. For these reasons Psychology has generally been regarded as an indispensable pre-requisite for Metaphysical inquiry. Psychology thus occupies, as it were, an intermediate position between Metaphysics and the Natural Sciences. These give rise to Metaphysical problems which can be properly solved only through psychological analysis and explanation. It may be mentioned here that the first principles, which Psychology discovers as the ultimate grounds of knowledge, are but the final assumptions, the real character and exact scope of which are determined by Metaphysics. "Psychology," Hoffding remarks, "is a special discipline, which pre-supposes the general principles of our knowledge, but cannot explain their validity." (*Psychology*, p. 355)

though the ultimate validity of the first principles discovered by Psychology must be determined on metaphysical grounds

§ 9. Physiology and Psychology. Physiology and Psychology are closely connected. What we call a human being is not mind alone, nor body alone, but mind connected with body. As we have no experience of a disembodied spirit, we can adequately understand mental phenomena only in relation to the connected organic processes. The connection is so very close that in some cases a psychical phenomenon derives its peculiar character partly from the concomitant organic disturbance. The character of fear or anger, for example, is determined partly by the somatic resonance—the perturbation in the one case and the heat and haste in the other. The Law of Diffusion similarly indicates to what extent the body is agitated when the mind is disturbed. The countenance is not improperly described as 'the mirror of the mind,' and good health is usually taken to be an index of a cheerful and contented disposition. As mind and body are thus closely united in this mortal journey of ours, the science which treats of the one must necessarily be closely connected with that which deals with the other. The two being life-partners, their processes are interconnected; so, therefore, the corresponding sciences must be, for to explain the one we cannot lose sight of the other.

Though body generally is thus related to the mind, yet there are some parts of our organism where this connection is revealed in a more intimate form. As we have seen in the last chapter, the nervous system—and more particularly the brain—

Psychology
and
Physiology
are closely
connected
owing to the
intimate
relation of
mind to
body.

Though the
Mind and the

Brain are
closely
connected,¹

is vitally connected with psychical processes, and hence the brain has been called 'the organ of the mind.' The most abstract thought or emotion is accompanied by nerve-processes in the brain, and sensations and volitions are likewise conditioned by them. Satisfactorily to explain, therefore, sensations and mental experiences, reference must be made to the structure and function of the sense-organs, the nerves, and the nerve-centres. Psychology thus comes to be closely connected with Physiology, which furnishes the knowledge of the organic conditions of our mental life, and what we call Physiological Psychology is primarily concerned with these conditions. But we should not forget in this connection, that, however helpful Physiology may be to the proper understanding of Psychology, their methods and ends are distinct. The nervous process cannot be the final explanation of the psychical. They are interconnected, but not identical. The one can be understood in terms of matter and motion, while the other only in relation to consciousness. They are governed by distinct, though parallel, laws, and so we should not fall into the mistake of thinking that to point out the physiological conditions of a mental phenomenon is its full and final explanation.

yet the
nervous
process is not
the full and
final
explanation
of the mental.

§ 10 Uses of the Study of Psychology.
In this utilitarian age, Psychology has usually been regarded as a dreamy science without any practical value. 'Psychology' has been contrasted with 'Science', which leads to inventions and the useful arts. It would not, therefore, be out of place

to consider here the uses of psychological study. Before doing so, however, we should remember that the contrast between Psychology and Science—between "the Philosophy Course" and "The Science Course"—is misleading. Psychology is not merely a science, but it prepares the way for a proper study of the sciences. Science is but the expression of a mind, and the more well regulated a mind, the more accurate is its expression in science. And even towards discoveries and inventions Psychology has contributed more than this or that science. Can there be a discovery or an invention without due imaginative insight? And, to regulate our imagination aright, we must know its character and mode of operation. It may, no doubt, be said that there may be well-regulated imagination in persons who are not psychologists. True, and there may similarly be sound reasoning in men who are not logicians, and good health in individuals who are not physicians. But are the chances of well-regulated imagination, sound reasoning, and good health greater when their laws are not known than when they are known? Can we be sure of due regulation without knowledge? Let us, then, consider the utility of psychological study.

Psychology may be said to have (I) an absolute and (II) a relative value. The distinction between absolute and relative value is intelligible by reference to the distinction between ends and means. As Hamilton says—"Somethings are valuable, finally, or for themselves,—these are ends, other things are valuable, not on their own account, but as con-

Psychology
helps the
study of the
Sciences

Distinction
between
Absolute and
Relative
Value

ducive towards certain ulterior ends,—these are means. The value of ends is absolute,—the value of means is relative. Absolute value is properly called a *good*,—relative value is properly called a *utility*. Of goods, or absolute ends, there are for man but two,—perfection and happiness. By perfection is meant the full and harmonious development of all our faculties, corporeal and mental, intellectual and moral, by happiness, the complement of all the pleasures of which we are susceptible." (*Metaphysics*, I, pp. 19-20)

I Absolute
Value of
Psychology is
(1) partly
subjective
and (2)
partly
objective

(1) The
subjective
value lies in
(a) the due
cultivation of
mental
powers

(1) The absolute value of a thing is its intrinsic worth. The absolute value of Psychology consists in its being an end in itself. It secures advantages which by themselves are valuable, without any reference to something else. This absolute value again is (1) partly *subjective* and (2) partly *objective*.

(1) The *Subjective Value of Psychology* lies in (a) the cultivation or improvement of the mind itself. Of all the subjects of study, Psychology is best fitted to call forth the several faculties of the mind—and pre-eminently the higher faculties, such as the scientific, the moral, and the religious. No faculty can develop without repeated and varied exercise upon suitable materials. Such materials are amply presented in Psychology, since it has to examine and explain the grounds of all knowledge. In fact, nothing—psychical or physical, natural or supernatural—can be rightly understood without an examination of its psychological basis. Psychology is a severe intellectual drill, an excellent mental

discipline, securing the full and harmonious development of the mental faculties; and the complete development of the faculties is the goal of all education—the true end of life. (b) The subjective value of Psychology is illustrated, in another way, in the supreme satisfaction which ensues upon successful mental exercise—the examination and elucidation of facts, which otherwise perplex the mind.

(2) The *Objective Value of Psychology* consists in its furnishing the mind with a body of accurate truths and principles. A mind, well-stored with facts and principles, is not merely useful for other purposes, but is really a noble achievement in itself, attended with its own satisfaction. It may be mentioned here that the objective value of Psychology is really subsidiary to its subjective worth. The ultimate end of all study is the improvement of the mind—the due cultivation of the faculties—and not merely to store the mind with information. In fact, accurate and adequate knowledge is but the expression—the evidence, as it were—of a well-cultivated mind.

(II) The relative value of a thing is its extrinsic worth—its usefulness with regard to something else. (1) The relative value of Psychology is illustrated in the fact that an accurate knowledge of mental processes is an indispensable pre-requisite for the successful prosecution of all studies. Without a cultivation of mind and an examination of psychical processes, no one is competent to study with success any branch of knowledge. (2)

and (b) the consequent mental satisfaction.

(2) The objective value consists in the acquisition of correct knowledge.

II. The Relative value of Psychology consists in its (1) furthering other studies

and (2) duly
regulating
practice

Again, a fact or principle learnt has always a practical bearing. As Hamilton says, "A truth, once known, falls into comparative insignificance. It is now prized, less on its own account than as opening up new ways to new activity, new suspense, new hopes, new discoveries, new self-gratulation" (*Metaphysics*, II, p. 10) As Psychology familiarizes one with the most important class of truths—viz., the truths regarding mental operations—it necessarily places him on a vantage ground in estimating the character and ways of Man and Nature and so successfully dealing with them

Psychology has often been erroneously described as a mere speculative science, without any practical value. The distinction, however, between speculative and practical science is only relative. In a sense, Psychology is the most practical of all sciences. It is as much needed in the study or laboratory as in our dealings with men, as much in the field as at home, as much in abstract contemplation as in the practical affairs of life. The Physician, the Lawyer, the Merchant, the Statesman, the Moralist, the Theologian, the Teacher—in short, all who exercise their mind or deal with mind—require the aid of Psychology, more or less. As explained above, some very useful human sciences—such as Logic, Ethics, Aesthetics, Rhetoric, Pedagogics—are ultimately based on it. To understand these properly we must study Psychology.

In a sense,
Psychology is
the most
practical and
useful of all
sciences.

§ 11. Exercises

i. Distinguish between Science and Metaphysics

2 What is Philosophy? How is it distinguished from the Sciences?

3 Define and distinguish Psychology, Metaphysics, and Philosophy.

4 Exhibit briefly the relation of Psychology to the Special Sciences

5. Distinguish (1) a theoretic from a practical science, and (2) a positive from a normative science. Name the practical sciences founded upon Psychology and explain their relation to it

6 Point out the relation of Psychology to (a) Logic, (b) Ethics, and (c) Metaphysics.

7 Is Psychology a science? Psychology, "while a *science* of mind, is a science of *mind*." Explain this in detail.

8 State concisely in what ways you think the sciences of Physiology, Philology, and Mental Pathology may serve to advance Psychology.

9 Point out the uses of the study of Psychology.

BOOK II.

GENERAL VIEW OF MIND

CHAPTER IV.

CONSCIOUSNESS.

'Consciousness' is used in three senses
(1) In the widest sense, it is equivalent to mind.

(2) In a wide sense, it implies immediate or presentative knowledge

(3) In the narrow sense, it stands for introspective knowledge.

§ 1. Ambiguity of the term Consciousness. The interpretation of 'consciousness' is the business of Psychology. The term consciousness, however, has been used in various senses (1) In the widest sense, it is equivalent to mind what is outside consciousness is properly speaking outside mind. Thus, all modes of mental life—intellectual, emotional, and volitional—constitute consciousness. It is the general condition of our mental life (2) In a wide sense, consciousness implies the immediate knowledge of anything present in the mind. It is thus equivalent to the cognitive energy, as distinguished from the emotional or the volitional; and it stands for intuitive and not inferential nor reflex knowledge When we are directly aware of anything—as of an anger felt or of a thing perceived,—we say 'we are conscious of it,' and this direct knowledge is to be distinguished from inferential knowledge—the knowledge of one thing by means of another—as well as from reflex or introspective knowledge (3) In the narrow sense, consciousness signifies the introspective knowledge of what transpires within us. In this sense, it is not

simply the natural concomitant of all our mental states, but an additional activity superinduced to examine what is present before our mind. Consciousness, thus construed, is intimately connected with self-consciousness ; and its primary function is to render explicit what otherwise would be but implicitly present in the mind. Of these three senses, the first is the sense in which the term 'consciousness' is ordinarily used in Psychology.

§ 2 Definition of Consciousness. Properly speaking, consciousness cannot be defined. To define a term, we must be able to assign its genus ; but consciousness is a *summum genus* : it is elementary and *sui generis*. As it is unique and of its own kind, we cannot explain it by likening it to something else. It must be either known directly or not known at all. One who does not find it in himself, can never be made to understand it by any extraneous means, such as a definition or a description. Though, however, consciousness cannot be defined, yet it may be described ; and, it being practically equivalent to mind as known to us, the description of both must be analogous. We may, accordingly, describe consciousness (*a*) by enumerating its chief constituents or varieties, *viz.*, knowing, feeling, and willing, or (*b*) by using synonymous expressions, such as 'the general condition of mental life,' 'the common feature of all psychoses,' 'the self's awareness of itself and its phenomena,' *etc.*, or (*c*) by contrasting it with its opposite, *viz.*, the distinguishing attributes of matter, such as extension, weight, *etc.* Professor

In Psychology the term is generally used in the first sense.

Consciousness being elementary cannot be defined ;

but, like mind, it may be described, in three ways.

Prof Ladd's
description

Ladd describes consciousness thus "What we are when we are awake, as contrasted with what we are when we sink into a profound and perfectly dreamless sleep...that is to be conscious. What we are less and less, as we sink gradually down into dreamless sleep, or as we swoon slowly away and what we are more and more, as the noise of the crowd outside tardily arouses us from our after-dinner nap, or as we come out of the midnight darkness of the typhoid fever-crisis, that is consciousness" (*Psychology*, p. 30)

Consciousness (Lat. *con*, with, and *scientia*, knowledge) thus implies the knowledge which the mind has of itself as revealed in its present mood, or the awareness of a state as a mode of the mind. It thus involves knowledge of mind as well as knowledge of a present condition pertaining to it. As Calderwood remarks, "Every state of consciousness involves three elements. The shortest expression of such a state is. I—am conscious—of a perception An act of perception thus standing as the illustration, there are in the single state the conscious knower, the consciousness, and the present experience, *viz.*, a perception" (*Moral Philosophy*, p. 9) Thus, a state of consciousness expresses a relation between a subject and an object (the terms being understood strictly in a psychological, and not in a metaphysical, sense), the mind-knowing and the thing known, and betrays on analysis the three factors—(1) subject, (2) object, and (3) consciousness as the connecting link between them Consciousness is, no doubt, but a kinetic or

Consciousness indicates a relation between subject and object, which may be present with different degrees of clearness and distinctness

revealed energy of the mind which establishes the relation between the knower and the known , but still it is as much a necessary ingredient of knowledge as the other two , but for it, the other two would be altogether devoid of meaning. Though, however, these three elements are always co-present, yet they may not be present to the same degree. Let us consider (1) first the variations in our consciousness of subject and object and (2) next variations in consciousness itself.

§ 3. (1) Consciousness and Self-consciousness. Though subject and object are always co-present in consciousness, yet, in early experience, the objective factor is prominent. As the development of the mind is from the presentative to the representative, perception appears earlier than ideation , and in perception our attention is directed to the thing perceived, rather than to the percipient mind. A child tasting an orange or a boy playing cricket is absorbed in the thought of the orange or of the cricket-ball, and he scarcely thinks at the time of his self as the subject of the present experience. Even in the case of a subjective experience, such as anger or joy, the experience itself engages the attention more than the percipient mind : an individual on such an occasion thinks more of the mental content or object than of the mind itself, one forgets himself, as we say, in anger, or he is transported out of himself in joy. Thus, ordinarily, Consciousness, though involving both subject and object, furnishes an explicit knowledge of the latter and only an implicit knowledge of the former.

In early experience the objective factor is prominent ; in perception the thing observed absorbs the mind.

Thus, ordinarily consciousness gives an explicit knowledge of the

object and only an implicit knowledge of the subject or mind, which by reflection becomes prominent.

There are various grades of consciousness from the unconscious or subconscious stage to the clearly conscious.

But, with the growth of reflection or introspection, the implicit knowledge of mind is rendered explicit one, by looking within, discovers mind as no less (if not more) an important condition of knowledge than the thing known. This leads to *Self-consciousness* or an explicit grasp of the self as the centre and seat of all experience. How this crude idea of self gradually develops into a more definite and abstract conception, we shall have occasion to consider elsewhere. (*Vide Chap. XIII, § 12*)

~~✓~~ 4. (2) Degrees and Forms of Consciousness Consciousness also admits of various degrees, ranging from the most obscure and vague impression to the most clear and distinct knowledge. At the one extremity we have the full blaze of vivid consciousness, while at the other we have the dim glimmer of a twilight reverie, and in the middle there are various gradations of more or less distinct experiences. Thus, there are grades of consciousness ; and, if these be arranged in a scale, we find an upper limit or height and a lower limit or threshold. What is below the threshold of consciousness is said to be in the region of the unconscious or sub-conscious. Facts of memory, for example, lie in this region until they are recalled ; and, when attention is directed to them, they rise above the threshold, thereby revealing their presence in the mind. In fact, as we shall see later on, the distinction between the conscious and the unconscious or sub-conscious states is not an absolute one. Consciousness is too much a unity to be divided in this way. (*Vide Chap. XVIII, § 12*).

Consciousness is mental vitality admitting of various degrees

Even when facts of consciousness are above the threshold, there are certain prominent aspects in them which deserve a separate notice (a) The *vividness* of a fact of consciousness is determined by its intensity. Generally speaking we may say that impressions which are of moderate intensity are vividly known. A dazzling or a feeble light, for example, is not likely to give rise to a vivid impression; but usually greater intensity is more favourable to vividness than less. Again, vividness is determined not merely by objective but also by subjective circumstances: even a faint impression may seem to us to be striking or vivid 'when associated with feeling or exciting interest and engaging attention. Thus, an emotional glow or concentration of attention may stamp an otherwise insignificant experience upon the mind as quite vivid or lively. (b) Consciousness, again, is either *clear* or *obscure*. "An act of consciousness, whether presentative or representative, is *clear* when its object as a whole can be distinguished from any other, when this cannot be done, it is *obscure*" (*Mansel, Metaphysics*, p. 46) Thus, the figure of a horse is said to be clear when it is well-defined, i.e., distinguished from other figures, such as those of an ass, a mule, etc., with which it is liable to be confounded. (c) Consciousness is also either *distinct* or *confused*. "An act of consciousness is *distinct* when the several parts constituting its object can be distinguished from each other; when this is not the case, it is *indistinct* or *confused*" Thus, we apprehend the figure of a horse distinctly when we grasp its

Forms of Consciousness of which we are aware.
(a) *Vividness or dimness in intensity*

(b) *Clearness or obscure- ness as a whole*

(c) *Distinct- ness or confusedness in parts*

details Mansel very rightly observes, "To form a clear or distinct consciousness, an act of reflection must accompany the intuition. An obscure or indistinct consciousness may in some degree be obtained by intuition alone. The latter contains all the materials of the former, though not disposed in the same relations to each other. In an obscure or indistinct intuition we may be dimly aware of the existence of differences of some kind, but be unable to say what they are." (*Ibid.*, p. 47.) The difference between clear and obscure, distinct and confused, cognition was first noticed by Leibniz, but some writers are disposed to reverse the distinction. Sully, for example, remarks—"If it were possible to break through a habit of speech, it might be advantageous, modifying the phrasology of Leibniz, to use the antithesis clear—obscure with reference to the first kind of distinctness (distinctness of parts and details), and the antithesis distinct—confused with reference to the second kind (distinctness of the whole)" [*Psychology*, pp. 173-74.] In fact, the distinction is not strictly observed by many psychologists (d) A state of consciousness is said to be *accurate* when it faithfully represents a fact. It is evident that we can speak of accuracy only in the case of representations. We can never describe a presentative experience, such as a percept, as accurate or inaccurate, unless it be with reference to the representative factors. We should also remember that ordinarily these traits go together, so that a vivid experience is usually clear, distinct, and accurate, but still there is no logical connection.

(d) Accuracy
or inaccuracy
in representa-
tion.

These
features often
go together

among them. And it not infrequently happens that a state of consciousness illustrates some of these features without the rest. An image, for example, may be vivid without, on that account, being distinct or accurate. Again, we sometimes have clear ideas which are not very distinct. We may, for example, be able fairly to distinguish a horse from other animals, without having a definite and exact knowledge of its different parts.

§ 5 Characteristics of Consciousness. Consciousness is essentially a unity, and it betrays on analysis the following traits :—

(1) The unity of consciousness is specially manifested in the *connection existing between the successive phenomena* which make up our mental life. As Prof. James remarks, "Consciousness does not appear to itself chopped up in bits. Such words as 'chain' or 'train' do not describe it fitly as it presents itself in the first instance. It is nothing jointed ; it flows. A 'river' or a 'stream' are the metaphors by which it is most naturally described. *In talking of it hereafter, let us call it the stream of thought, of consciousness, or of subjective life.*" (*Text-Book of Psychology*, p. 159.) In fact, connection between successive experiences is very close; a mental modification is so by reason of its relation to and connection with the mood immediately preceding. "Does not a loud explosion," asks Prof. James, "rend the consciousness, upon which it abruptly breaks, in twain ?" And he replies, "No, for even into our awareness of the thunder the awareness of the previous silence creeps and continues ; for what we hear

The essential unity of consciousness illustrates—

(1) Connection and continuity among its parts,

when the thunder crashes is not thunder *pure*, but thunder-breaking-upon-silence-and-contrasting-with-it."

The continuity is either (A) general or (B) special.

While general continuity is illustrated in the case of contiguous experiences, special or conative continuity is illustrated in the case of the subordination of special to general interests or the satisfaction of recurring wants.

This continuity, however, is manifested in different ways. Over and above (A) the *general continuity* indicated just now, there is (B) a *special continuity* in the shape of the connection and continuity of aims and interests constituting individual life. This is described by Prof. Stout as 'conative unity and continuity', and he remarks that "this interweaving of interests in a system constitutes the unity of personal life as opposed to the impulsive life of animals." (*Psychology*, p. 84.) The difference between general and conative continuity lies in the fact that while in the former the several experiences, constituting the unity of consciousness, are contiguous, being either simultaneous or successive, in the latter there are often intervals or temporal gaps among the general aims and interests governing our life, but such gaps do not imply that there is the absence of continuity among the aims of life. As the several ends of conscious life constitute a system, the seemingly diverse duties of life are really connected and continuous. This special form of continuity, as Stout points out, is illustrated in two ways (a) "the satisfaction of special interests is also the partial satisfaction of more general interests, and the attainment of this or that result forms a step towards the attainment of others in progressive order," and (b) the duties of life illustrate but recurring wants or ends of life which among themselves constitute a harmonious

and concatenated whole. "Suppose," writes Stout, "that while playing chess or whist, I am suddenly called away at a critical stage of the game to meet a visitor on a matter of business... My state of mind when I have finished business with the visitor and returned to my game is continuous with my state of mind when I was interrupted rather than with the intervening flow of consciousness. The very word, interruption implies this It is clear, then, that continuity of interest is more or less independent of direct proximity in time. This kind of continuity is essentially connected with mental activity in the strict sense, with the striving, conative, appetitive side of our nature. Its general condition is that the successive phases of a conscious process shall constitute a movement towards an end-state or terminus... An end-state or terminus is a state of consciousness in which the process finds its natural termination—the termination prescribed to it by its own nature and not by extraneous conditions. Each phase of the process before the end is reached is incomplete and tends by its own inherent constitution to pass beyond itself. If the activity is displaced by a disparate and disconnected process before it has attained its goal, it tends spontaneously to recur after the interruption and work itself out, starting from the stage at which it was cut short."

(2) Continuous conscious life illustrates another trait of consciousness, *viz.*, the difference between the comparatively stable and transitional states. These are described by Prof. James as *substantive*

(2) Difference
between
comparatively
stable and
transitional
states.

and transitive states of mind the one indicates an end state or resting place, as it were, where the mind may pause and hold before it an idea, while the other illustrates the passage of the mind from one point to another until the end is reached. Thus, within the limits of a continuous flow, there are stages where the current is comparatively calm and gentle, while there are other parts where it is fleeting and nimble. And, as prof. James remarks, "it is very difficult, introspectively, to see the transitive parts for what they really are. If they are but flights to a conclusion stopping them to look at them before the conclusion is reached is really annihilating them. Whilst if we wait till the conclusion *be* reached, it so exceeds them in vigour and stability that it quite eclipses and swallows them in its glare. Let any one try to cut a thought across in the middle and get a look at its section, and he will see how difficult the introspective observation of the transitive tracts is. The rush of the thought is so headlong that it almost always brings us up at the conclusion before we can arrest it." (*Text-Book*, p. 160)

(3) Retention
and
reproduction
of past
experience.

(3) The unity and continuity of consciousness reveals another important feature in it, *viz.*, *conservation* or *retention* and *reproduction* of past experience. As explained above, the clap of thunder is intelligible only when we take into consideration the previous silence which, as it were, steals into it. Hoffding rightly observes, "Every individual element belongs to consciousness only through its union with other elements. The emphasis is thus

to be laid on the union, the connection and not on the members in their individuality. The peculiarity of the phenomena of consciousness, as contrasted with the subject-matter of the science of external nature or material phenomena, is precisely that inner connection between the individual elements in virtue of which they appear as belonging to one and the same subject; and this connection has its typical expression in *memory*, which may, on that account, be called the fundamental phenomenon in the mental province." (*Psychology*, p. 47.) From this we can see what an egregious mistake the empiricists commit when losing sight of this bond of union, they describe consciousness as merely succession of impressions and ideas. These supply but the materials; the mortar to connect them is supplied by the conservative and reproductive power of the mind.

(4) Another important feature of consciousness is *recognition* or *assimilation*. Thus, when we reproduce a past experience, we know it to be such, i.e., we recognise it, a present fact, likewise, is properly understood when it is assimilated to old experience, and similar experiences of different periods of our mental history are also brought together by this property. Assimilation..is..thus..a bond which unites the present with the past, the proximate with the remote. Hoffding writes, "The power of preserving and reproducing earlier states is found in unconscious nature. But what this lacks is the power of *recognizing* the states reproduced. With unconscious beings one moment

(4) Recognition or assimilation of like experiences.

falls outside the other, even though the content of both is the same. In recognition, on the contrary, the distinctions of time and space are annulled, things which have been experienced at different times and in different places being immediately brought together. In recognition and in memory is expressed an inner unity, to which the material world affords no parallel" (*Psychology*, pp. 46-47.)

(5) Discrimination or apprehension of change

(5) Consciousness is further characterized by *change* or *discrimination*. The present is known not merely because it is assimilated to some past experience, but also because it is discriminated from what immediately precedes, succeeds, or accompanies. The present experience is at once a repetition of and a deviation from the past: it partly resembles, and partly differs from, what we experienced before. Change is no less an important condition of consciousness than recognition. As Hobbes says, "To feel always the same thing is equivalent to not feeling at all." *Knowledge is essentially relative.* a thing is known only as it is related to and distinguished from other things. Complete uniformity or monotony of experience annihilates consciousness. It is very aptly said—

"Weep not that the world changes—did it keep
A stable, changeless course, 't were cause to weep."

(6) A feeling-tones usually in the form

or

(6) Consciousness further implies a pleasurable or painful experience, with an occasional excitement of a neutral character. Mental phenomena generally involve a certain liking for some members of the series and a disliking for others,

though there are moments of simple mental excitement, such as is illustrated in wonder.

(7) Consciousness betrays also an active tendency or striving for an end, either in the form of desires or aversions or in the form of deliberation, resolution, and choice. Even the promptings of appetites and passions have their reflex effect on consciousness, thereby imparting to it an active tone or tendency to activity.

(7) An active tendency or striving for an object.

These characteristics are the essential elements in our conscious life, without which consciousness would be rendered impossible. They reveal a *synthetic activity* on the part of the mind by which the materials presented to it are, as it were, cemented into a consistent whole of experience. Without this activity the materials would never constitute knowledge. The position of Kant, then, that consciousness is essentially synthetic, combining elements furnished through receptivity, marks an important advance in the true conception of mind. The synthetic power is manifested, as shown above, in the shape of reproduction, assimilation, and discrimination; pleasure and pain; and striving and choice. These *fundamental functions* constitute what we call the different *faculties* of the mind—intellect, feeling, and will. Their co-presence or co-operation reveals, as indicated above, a unity and continuity which underlies our conception of individuality or personality. "However much assailed or disavowed," writes Ward, "the conception of mind or conscious subject is to be found implicitly or explicitly in all psychological writers what-

These characteristics reveal that the mind is a centre of synthetic activity without which the materials or impressions would never constitute experience.

Thus, the conception of personality as the seat and centre of all functions and faculties lies at the root of all psychological investigations.

ever—not more in Berkeley, who accepts it as a fact, than in Hume, who accepts it as a fiction." (*Encyclo Brit.*, XX, p 139) Every state thus becomes a part of a personal consciousness or subject ; and, every subject being a distinct centre of experience, the world in every case is once for all divided into two parts—a self and a not-self "The altogether unique kind of interest which each human mind feels in those parts of creation which it can call *me* or *mine* may be a moral riddle, but it is a fundamental psychological fact No mind can take the same interest in his neighbour's *me* as in his own. The neighbour's *me* falls together with all the rest of things in one foreign mass against which his own *me* stands out in startling relief Even the trodden worm, as Lotze somewhere says, contrasts his own suffering self with the whole remaining universe, though he have no clear conception either of himself or of what the universe may be He is for me a mere part of the world , for him it is I who am the mere part. Each of us dichotomizes the Kosmos in a different place" (James, *Test-Book*, pp 174-75)

The distinction between subject and object is a cardinal psychological fact.

The conditions of consciousness are (I) partly psychical and (II) partly psychological.

The psychological conditions include those that are metaphysical, physiological,

§ 6 Conditions of Consciousness We have already seen (*Vide Chap I, § 9*) that psychological facts are wider than psychical. As the psychical conditions of consciousness determine its character, these have already been explained above under its characteristics We shall, therefore, only mention them here and also indicate the other conditions which come under psychological facts. The different conditions may be described as

psychical, metaphysical, physiological, physical and social. They may be arranged and explained thus

I. Psychical Conditions —

(1) In order that we may be conscious of a fact, it must be *connected with the other facts* of our conscious life. Since our consciousness is characterized by unity and continuity, any fact of which we may be aware must be a part of it. A thing which is not in any way related to what we have experienced is altogether unintelligible to us.

(2) That one fact may be related to another we must postulate, as explained above, *memory* and *recognition*

(3) Consciousness also implies, as noted above, *discrimination*, *contrast*, or *change*. As Hobbes has said, to have always the same feeling and to have none at all are one and the same thing. This is known as the *Law of Relativity*, which we shall separately notice below.

(4) Consciousness further involves (a) elements of *feeling* as well as (b) *striving* and *choice*. To the existence of a state of consciousness, the co-presence of intellectual, emotional, and volitional elements is necessary, though in varying degrees.

(5) The connection and co-operation of these factors imply a synthetic power or unifying principle, which we call the *mind*.

(6) The knowledge of the mind implies also the knowledge of its opposite, the not-mind : *subject* and *object* are correlatives and thus the joint conditions of consciousness.

physical, and
social.

I. Psychical Conditions.

(1) Mutual relation and connection of conscious facts.

(2) Memory and recognition.

(3) Discrimination

(4) Emotive and conative modifications.

(5) Mind as a synthetic active principle.

(6) Contrast of subject and object.

II Psychological Conditions

Other Than Psychical

(1) Philosophical or Metaphysical conditions
(a) Mind as a substance or agent ,

(b) Not self as influencing Mind ,

(c) the character and significance of Knowledge..

logical conditions
(a) Central nervous processes

II Psychological Conditions Other than Those That are Psychical :—

(1) *Metaphysical or Philosophical Conditions* —

(a) The unity of the mental principle carries with it the implication of a *substance* or an *agent*, conceived as either spiritual or material, which it is the business of Metaphysics or Philosophy definitely to examine

(b) Consciousness implies further the existence of something other than the mind, a *not-self*, whether real or imaginary, cognate or alien, the character of which Philosophy should determine.

(c) There is the further question as to *the way in which the not-self influences the self or the character and significance of knowledge itself*—(1) whether consciousness is restricted to phenomena alone, which are the joint effects of the influences of self and not-self, not themselves known (Kant), or (2) it implies a direct knowledge of both these factors (Natural Realism), or (3) it implies only a direct knowledge of self and an indirect knowledge of not-self (Cosmthetic Idealism) This inquiry is generally regarded as psychological rather than metaphysical, since it involves an examination of the nature and limits of knowledge itself, but a satisfactory solution of the problem leads us to metaphysical inquiries as to the character and contributions of the self and the not-self.

(2) *Physiological Conditions* —

(a) *Central Nervous Processes*. To explain a fact of consciousness we must mention all the conditions necessary to its production. And, as con-

sciousness, in the form in which it is known to us, is intimately connected with the nerve-processes (specially the cerebral processes), a reference to these is essential to throw an adequate light on any psychical phenomenon

(b) *Peripheral Structure of Sense or Sense-organs.* Consciousness finds its materials in sensations ; and these sensations are determined by the structure or condition of the sense-organs There are persons who are colour-blind or note-deaf ; and a variation in the state of an organ determines also the subsequent sensation (*e.g.*, taste or smell on any occasion is determined by the condition of the organ as modified by the preceding taste or smell). Organs are adapted to their appropriate stimuli ; and there are acute as well as obtuse senses In fact, these senses define the limits of our knowledge of the external world ; and the senses of all individuals or all the senses of one and the same individual are not equally discriminative or refined.

(b) Structure of sense-organs.

(3) *Physical Conditions or Character of Stimuli*
Our consciousness is roused into its activity by outward stimuli , without them there would be no impression and no knowledge The character of a stimulus determines the nature of the resulting sensation The quality and intensity of sensations are, no doubt, determined by the character of the connected nerve-processes , but these in their turn are conditioned by the form and energy of outward stimuli In vision, for example, a certain number of vibrations means one colour, while a different number means a different colour , and in

(3) Physical conditions

The quality and intensity of sensations are determined by the character and energy of stimuli.

audition, likewise, a certain ratio means harmony, while a different relation indicates dissonance. The distinction between colour and sound, likewise, is due to the difference in the stimuli which act on the senses. Ether vibration stimulates the eyes, and air-vibration, the ears. Thus, differences of quality, whether specific or generic, are relative to differences among stimuli. There is similarly a close correspondence between the intensities of stimuli and the intensities of sensations. There is great difference, for example, between the sensation produced by a flash of lightning or the report of a gun and that produced by the twinkling of a star or the humming of a bee. *Psycho-physics* has established some important results with regard to this correspondence and has reduced them, in some cases, to definite laws (*Vide Chap VII, § 10*)

(4) Consciousness is determined also by social conditions

Social intelligence awakens latent capacities and tendencies and also improves them

(4) *Social Conditions* Consciousness, as it is found in man, is determined not merely by the psychical, nervous, and physical conditions, but also by the social (1) The conscious life of an individual would be very different from what it is, if the influence of society be left out of account. The training of the individual mind is expedited and perfected by the mighty influence of the social intelligence on it. We learn, for example, the meanings and uses of things far more easily and quickly from our elders and companions than by the mere unaided efforts of our personal intelligence. And not only do we find our consciousness thus improved, but we find also (2) that it is at times roused into activity by the silent

influence of the members constituting society. A feeling or an impulse, for example, often appears in us when we notice its expression in others, though the circumstances occasioning it are not actually present or fully realised. We are thus moved by grief, fear, or anger, when we find others similarly affected. The effect of the social environment on the mental development of children is a patent psychological fact which cannot be ignored.

Thus, a state of consciousness, as it is known to us, is determined by several factors—psychical, metaphysical, physiological, physical, and social. It needs scarcely any mention that, of these factors or conditions, the peripheral structure and outward stimuli affect consciousness only in the case of sense-perception.

§ 7 The Relativity of Consciousness. The above remarks must have made it clear that consciousness is essentially relative. To know a thing we must be aware of its relation to something else: a solitary fact, destitute of all relations, is devoid of any meaning to us. The expression "relativity of consciousness or of human knowledge" has been used, however, in various senses, some of which are well indicated by Mill in his *Examination of Hamilton's Philosophy* (Chapter II).

Consciousness
is essentially
relative

The Law of
Relativity is
illustrated in
various forms.

It implies—

(1) In its widest sense the *Law of Relativity* implies that consciousness consists in the recognition of relations, which primarily involves discrimination, change, or contrast. "We only know anything, by knowing it as distinguished from something else, all consciousness is of difference."

(1) the
recognition of
relations
involving
difference,

two objects are the smallest number required to constitute consciousness, a thing is only seen to be what it is, by contrast with what it is not" (Mill's *Examination*, p. 6) Hence a dull uniformity begets no consciousness, or, as Hobbes puts it, "to feel always the same thing and not to feel at all are psychologically the same." Consciousness involves, no doubt, relations of similarity, contiguity, and contrast, but the last of these is relatively the most important, since without it we would fail to detect the elements which we are to connect by similarity or contiguity. The importance of change or contrast is brought out by the facts (*a*) that our estimates are generally relative (*e.g.*, hot, tall, rich, rough, heavy, hard) and (*b*) that the co-presence of opposite features (*e.g.*, a giant and a pygmy, beauty and deformity, harmony and discord) heightens the mental effect. Hence explanations are more effective when proceeding by way of antithesis or contrast.

(2) the
contrast
between
'subject' and
'object,'

(2) Knowledge is further relative in the sense that it always involves the relation between the self and the not-self, the subject and the object, the one is known only in relation to, and as distinguished from, the other.

(3) that
knowledge is
relative to
personal
constitution,

(3) The relativity of knowledge, accordingly, indicates that the objects known must always be relative to the constitution and capacity of the mind and thus to the structure and refinement of the organs, through which alone it can be influenced. External objects, for example, may have more qualities than can possibly be known to us through

the senses which we possess'; and such qualities might have been revealed to us had we been differently constituted. This position, however, does not necessarily mean that our knowledge of things, so far as it goes, is either invalid or inadequate for our purposes. The world, as known to man, may not exactly be the same as it is known to brutes or angels; nevertheless knowledge in each case may be equally valid and useful.

(4) It is further contended that, since objects are known in relation to each other and in relation to the percipient mind, they can never be known in their true or absolute character what objects in themselves are we can never imagine: we can understand them only as they appear to us. This view wears four prominent forms:—

(a) Our knowledge, it is urged, is resolvable into relations among objects; and these objects in their turn are made up of relations among their qualities expressing relations of similarity and difference among psychical phenomena which are essentially relative in character. "We do not know any one thing by itself," writes Bain, "but only the difference between two." The entire world as known to us thus resolves itself into a system of relations "When we ask, 'Relations between what?' we always get the same answer indefinitely, 'Relations between relations. All is relation.'"

(b) According to some (*e.g.*, Kant) our knowledge is the joint-effect of factors supplied by the subject and the object, and hence, like a chemical compound, it does not represent either of

(4) that objects in their absolute character, as out of all relations, can never be known.

This last form is construed in four ways

(a) that knowledge is ultimately resolvable into mere relations and nothing more;

(b) that we know phenomena alone as the combined effects of *a priori* and *a posteriori* factors;

these factors faithfully. We have, accordingly, no means of knowing a reality as it is, what we know is but a phenomenal world, conditioned by *a priori* and *a posteriori* factors.

(c) that objects are but subjective creations—‘permanent possibilities of sensations’;

(c) Others, however, contend that, as the object is entirely relative to the subject, the thing known is but a dressed-up reality—a creation out of purely subjective experiences and according to subjective laws. These laws need not be *a priori*, they merely express the uniform relations existing among mental phenomena. Thus, sensations and associations are believed to be quite adequate to account for our knowledge of objects. And, if sensations vary with individuals, objects vary too. And thus, after several centuries, we are brought back to the position of Protagoras, that ‘Man is the measure of all things.’

(d) that noumena or things in themselves, though existing, can never be known, knowledge being essentially restricted to phenomena alone

(d) “Between these,” as Mill remarks, “there are many intermediate systems, according as different thinkers have assigned more or less to the original furniture of the mind on the one hand, or to the associations generated by experience on the other” (*Examination*, p. 13). Brown, for example, is of opinion that “though we are assured of the objective existence of a world external to the mind, our knowledge of that world is absolutely limited to the modes in which we are affected by it.” Spencer similarly restricts our knowledge to phenomena alone and relegates the noumena or things-in-themselves to the region of the ‘unknowable.’ And Comte also apparently holds the same view—“though, while maintaining with great emphasis

the unknowableness of noumena by our faculties, his aversion to metaphysics prevents him from giving any definite opinion as to their real existence which, however, his language always by implication assumes" (*Examination*, p 13.)

It may be mentioned in this connection that the last interpretation of relativity (*vis*, 4) sounds but a note of universal scepticism in a more or less pronounced form As scepticism is a suicidal position, affirming and denying certitude in the same breath, let us offer a few remarks with regard to the above forms in which it finds expression.

(a) To say that we are aware of relations, without being aware of the objects or facts related, is not at all a consistent position "A relation is a relation between objects, apart from which it has no meaning and no home Can there be any meaning, for example, in saying that we know the difference between love and hate, between sweet and bitter, but not what love and hate or sweet and bitter are? Surely, the relations themselves do not constitute love nor hate, nor sweet nor bitter , nor can a relation subsist between extremes which melt themselves into zeroes : annihilate the terms and their relation disappears As Marvin says, "Knowledge is not merely a great cobweb of relations. Knowledge is a system of relations admitting of indefinite extension ; but the objects among which the relations hold are always facts —facts revealed then and there and demanding an interpretation" (*Introduction* p. 385.)

The last form (*vis*, 4) is but an expression of scepticism, which is suicidal in character
For—

(a) relations without objects related indicate an unmeaning expression,

(b) the co-presence of *a priori* and *a posteriori* factors does not necessarily imply that the resultant knowledge is unlike them,

(b) Assuming that knowledge is a product of both *a priori* and *a posteriori* factors, it does not follow that we know phenomena alone. Does not the very fact of their combination imply that they are adapted to each other? If, for example, the idea of space can be applied to external objects and not to inner experiences, it must be by reason of some fitness between the "form" and the "matter." Thus, the idea of space in us may correspond to real space without, and so with regard to the other *a priori* factors. This would imply that prior to our birth our constitution is adapted to the environment in which we are to live, and this is quite in keeping with teleology and evolution. The co-presence of *a priori* and *a posteriori* factors, therefore, does not necessarily imply that the resultant knowledge is unlike them, it may be a faithful representation of both the factors which, though distinct, are not discordant and which answer to each other much as a reflection resembles its original.

(c) knowledge is not self-destructive,

(c) To contend, again, that the external world is only ideal and not actual, because it is known to the mind, is to regard mind to be so abnormally constituted as to devour everything with which it comes into contact and to reproduce it in its own image as an idea. According to this view, "Mind, it seems, is so peculiar a Gorgon that it transforms objects into its own nature, and so, no two minds being alike, no two objects are alike, and therefore it is that all is relative. This Gorgonization of the object on the part of the

subject is the belief of all subjective idealism—(the object can only be known in me, in the subject, and therefore it is subjective, and if subjective, ideal)—but still it is capable of question Does it not seem absurd to say, that by interposition of mind, by which alone knowledge is possible, knowledge is at the same time impossible? What alone renders something possible, alone renders impossible! I know, but, because I know, I do not know! I see, but, because I see, I do not see! Is it a fact, then, that, because both—subject and object—are present in cognition, the one must be destroyed by the other, and not that cognition may be made true, but that it may be made false?" (*Schwegler's History of Philosophy*, pp 387-392.)

(d) To hold that there is a real world, but we do not know it, to relegate it to the region of the 'Unknowable,' is also incongruous. To affirm a reality is to know it, and though we cannot comprehend it, yet we must apprehend it. The 'Unknowable,' though mysterious, must be known as such; otherwise, we have no warrant for affirming its existence. The 'Unknowable' as an *x* does not merely perplex our understanding, but it puts too much strain upon our credulity also: it serves no purpose either in science or in religion. Harrison has well indicated the absurdity of such a procedure in his travesty of the agnostic's prayer to his unknown God: "O *xⁿth* love us, help us, make us one with Thee" Thus, the doctrine of relativity does not justify the view that we know nothing but phenomena or appearances.

(d) to affirm a reality and deny its knowledge can never be a self-consistent position.

The doctrine of different grades of mental activity was first propounded by Leibniz and subsequently developed by Hamilton. Hamilton mentions three forms of mental latency

§ 8 Unconscious Mental Modification and Unconscious Cerebration Leibniz was the first to lay stress on the various grades of conscious activity, and Hamilton has applied this view to the explanation of those facts which we are not distinctly conscious of, but which we must nevertheless presume to be present in our mind in order to account for those which we are aware of. This is his doctrine of *Latent* or *Unconscious Mental Modifications*. He admits three forms or degrees of mental latency :—

(1) facts retained but not reproduced,

(1) All knowledge retained out of consciousness "the infinitely greater part of our spiritual treasures lies always beyond the sphere of consciousness, hid in the obscure recesses of the mind" (*Metaphysics*, I, p 339)

(2) Systems of knowledge and habits acquired but not applied;

(2) Systems of knowledge or habits of action of which the mind is wholly unconscious in its ordinary state, but which are revealed to consciousness in certain extraordinary exaltations of its powers, e.g., memory of languages revived during delirium.

(3) unconscious conditions of certain mental states

(3) Mental modifications of which we are unconscious, but which manifest their existence by effects of which we are conscious (a) In *sensation*, for example, the murmur of the sea is resolvable into the sounds of the several waves of which we are unconscious, and the impression of the distant forest is similarly resolvable into the impressions of the constituent trees, their branches, and leaves (b) In *association of ideas*, likewise, one thought rises after another whose consecution we

cannot trace to conscious association with the preceding, but both are associated with an intermediate thought which, though latent at the time, is suggested by the first, and in turn suggests the second thought '*e.g.*, Hobbs' example of Roman penny*.) If a number of balls be placed in a line, and the one at the end of the line struck, motion will be manifested by the ball at the other end, but not by the intermediate balls, something like this occurs in the train of thought (*c*) In *acquired dexterities and habits*, in which the mind as the agent exercises conscious volition over the series, though there is no conscious volition in regard to each separate movement in the series which it determines

To this theory of unconscious mental modification it has been objected that to speak of a *mental state* of which we are *not conscious* is contradiction in terms. Hence physiological explanation—known as the theory of *Unconscious Cerebration*—has been given of the so-called unconscious mental modifications. In order to the production of a mental state, the stimulation of the brain must be of certain (*a*) intensity, (*b*) duration, and (*c*) extent; and when such is not the case a mental result cannot be brought about. The changes in the brain

Unconscious
Cerebration
as a rival
theory.

* Hobbes writes, "In a discourse of our present civil war, what could seem more impertinent than to ask, as one did, what was the value of a Roman penny? yet the coherence to me was manifest enough. For the thought of the war introduced the thought of the delivering up the king (*i.e.*, Charles I.) to his enemies; the thought of that brought in the thought of the delivering up of Christ (viewed as the spiritual king); and that again, the thought of the thirty pence which was the price of that treason paid to Judas Iscariot who betrayed him." (*Leviathan*, Part I., Chap. III.)

Dr. Carpenter's view.

which, owing to the absence of the above conditions, fail to produce a mental result have been described as unconscious cerebration Dr Carpenter explains the position thus.—The cerebrum, instead of being the centre of the whole system, in direct connection with the organs of sense and the muscular apparatus, is "a superadded organ, the development of which seems to bear a pretty constant relation to the degree in which intelligence supersedes instinct as a spring of action. The ganglionic matter which is spread out upon the surface of the hemispheres, and in which their potentiality resides, is connected with the Sensory Tract at their base (which is the real centre of conveyance for the sensory nerves of the whole body) by commissural fibres, long since termed by Reid, with sagacious foresight, 'nerves of the internal senses,' and its anatomical relation to the Sensorium is thus precisely the same as that of the retina, which is a ganglionic expansion connected with the Sensorium by the optic nerve. Hence it may be fairly surmised—(1) That as we only become conscious of visual impressions on the retina when their influence has been transmitted to the central Sensorium, so we only become conscious of ideational changes in the cerebral hemispheres when their influence has been transmitted to the same centre, (2) That as visual changes may take place in the retina of which we are unconscious, either through temporary inactivity of the Sensorium (as in sleep), or through the entire occupation of the attention in some other direction, so may ideational changes take place in the cerebrum, of

which we may be unconscious for want of receptivity on the part of the Sensorium, but of which the results may present themselves to the consciousness as ideas elaborated by an automatic process of which we have no cognizance.' (*Report of Meeting of Royal Institution Dr Carpenter's Lecture, March 1, 1868*, pp. 45)

We have seen that consciousness is determined by several factors—psychical, metaphysical, physiological, and physical. If, therefore, anyone of these conditions fail, then consciousness will not be produced. The phenomena connected with sense-impressions—explained by Hamilton by reference to mental latency and by others by reference to unconscious cerebration—may be accounted for also by reference to the absence of adequate physical or physiological conditions (a) It may be that the object, from which light is reflected or from which the vibration of the air proceeds, produces such a slight agitation of the intervening medium that it is spent or dispersed before it reaches the organ of sense. Or (b) suppose the agitation of ether or air to reach the nerve of sense, it may be that the impression upon the nerve is so slight that no vibration is propagated to the nerve-centre in the brain, or (c) the vibration is so very slight as not to be a sufficient condition of sensation. And that these suppositions are not extravagant is evidenced by the fact that certain artificial appliances, such as the microscope, the telescope, the auricle, collect or intensify the physical conditions of sensations, so that what was before

Some instances of mental latency or of unconscious cerebration may be explained by reference to the absence of adequate physical or physiological conditions of consciousness

invisible or inaudible may be distinctly seen or heard

It should, however, be borne in mind that the physical or physiological conditions are not the only conditions of our mental life, nay, though these are found to be the conditions of consciousness as it appears in us, endowed with an organism, they may not be the essential conditions of mental life itself. Though the close connection between mind and body is an established fact, yet their identity has not been proved, and it would seem that psychical phenomena are essentially or more intimately connected with psychical processes than with those that are nervous or natural. If the expressions 'unconscious mental modification' be objectionable, the expression 'unconscious cerebration' is still more so. As we cannot attribute consciousness to cerebration, we are not justified in describing some instances of cerebration as unconscious. "Instead of speaking of unconscious thought or unconscious feeling," observes Hoffding, "it would be safer—if we wish to avoid all hypotheses to speak with Carpenter and John Stuart Mill of unconscious cerebration, were not this expression unsuitable, as suggesting, in the first place, the mistaken notion that there may be consciousness of cerebration, properly so called, and because in the second place, it might appear to affirm that there is nothing at all in unconscious activity related to what we know in ourselves as conscious states. Just the impossibility of drawing a sharp line of demarcation between the conscious and

Unconscious
Mental
Modification
is, however,
not altogether
an untenable
position,

the unconscious, together with the thorough-going analogy between their mode of action and their results, might perhaps justify an hypothesis upholding the law of continuity in the world of ideas, even as in the material world everything seems obedient to it." (*Psychology*, p 81.) Mental phenomena should primarily be explained by mental agency : and if the word 'unconscious' be objectionable in this connection, we may use the word '*subconscious*' ; so that facts, which we are not conscious of, but which nevertheless must be presumed to be present in the mind to account for other facts of which we are aware, may be said to lie in the subconscious region until, by an effort of attention, the mind raises them above the threshold of consciousness.

§ 9 The Conscious, the Unconscious, and the Subconscious States. Grades of Conscious Life. The foregoing explanation must have made it clear that there is no sharp demarcation line between what are called consciousness and unconsciousness. In fact, on different occasions this line of demarcation shifts its place a little to this or to that side ; when we are alert and attentive, we become conscious of facts which otherwise we would miss , and again, when we are dull and inattentive, we fail to notice facts which ordinarily we grasp. Thus, with the rising and sinking of the physical and mental energy, the boundary line between consciousness and unconsciousness varies from moment to moment , and it is also affected by the varying degrees of

since mental facts should primarily be explained by mental agency.

Consciousness admits of various degrees or grades, without any absolute division of 'consciousness' and 'unconsciousness.'

attention or listlessness. This supports the view that there is no *absolute* demarcation line between the conscious and the unconscious; consciousness is properly speaking one and continuous, ranging from vivid consciousness to dim awareness, the latter again extending to various grades of subliminal or subconscious life (*Vide* Chap. XVIII, § 1). The honour of establishing the *law of continuity** in the mental world belongs to Leibniz "He instituted an analogy between the relation of kinetic energy to tension and the relation of the conscious to the unconscious. As tension (potential energy) is living force in equilibrium, so might unconsciousness be consciousness at rest or neutralized. This would agree very well with the fact that change or destruction of equilibrium is so essential a condition of consciousness. As in the external world there is no such thing as absolute rest, so—it might then be said—there is no absolute unconsciousness. Unconsciousness would then not be a negation of consciousness, but would be a lower degree of it, the continuation backwards of the series of degrees of consciousness" (Höffding's *Psychology*, pp. 81-82). The following proofs are cited by Höffding in support of the view that consciousness is really one and continuous, though admitting of infinite degrees, whether in the *super-liminal* or in the *sub-liminal* region —

Höffding's view.

Facts in support of the continuity of consciousness

(1) The so

(1) When, being unable to recall a fact or to

* The Law of Continuity is that Nature never makes leaps, that there is no abrupt break or gap between any two successive grades of being or experience.

properly arrange materials for a literary work, we desist from further efforts and allow the matter to work itself out, as we say, then after an interval, the fact or the proper arrangement may, as it were, 'flash' upon the mind. This development of a thing when 'slept upon,' illustrates that unconscious action may effect what conscious-and strenuous activity may fail to accomplish. "Here the subject has in the interval undergone further treatment, but this treatment has taken place below the threshold of consciousness, it has been carried on in us, not by us. And yet this unconscious working bears the impress of the same principles and laws that control conscious working." (*Psychology*, p. 74)

(2) "Not only may conscious results come from unconscious working up, but there may also be unconscious intermediate links in the midst of conscious work." (*Ibid.*) What we call sudden suggestions (e.g., Hobbes' Roman penny), habits, and tacts always illustrate such intermediate links, more or less in number.

(3) The close connection between the conscious and the unconscious is evidenced by the fact that any transformation of character, to be effective, must reach the deep-rooted tendencies which lie beneath the surface in the subconscious region. "What has been consciously attained has not taken real root until it operates unconsciously or, as we say, has become part of the flesh and blood. Conscious work acts as pioneer, but it is also important that the unconscious machinery should

called
'unconsciousness' achieves
as much as is
done by
'consciousness'
(e.g.,
spontaneous
remembrance
or solution
of a problem).

(2) Sudden
suggestions
betraying the
operation of
intermediate
unconscious
links.

(3) Conscious
action when
prefected
leads to
mechanical or
unconscious
execution,
and *vice versa*

be set in motion—Conversely, we may practise something quite mechanically, which afterwards gradually gains control over consciousness. Forced conversion may thus lead to zealous faith." (*Ibid*, p 76)

(4) 'Conscious' and 'unconscious' activity may go together and what seemed to be in the unconscious region may suddenly rise into consciousness.

(4) "An unconscious activity may be carried on simultaneously with a conscious. The spinner turns the wheel and draws out the thread, while all her thoughts are far away. A reader may be wholly absorbed in the contents of the book or even in other thoughts, while he sees the letters and pronounces the words corresponding to them. In these instances the subordinate action at any rate approximates to the unconscious, and there can be little question that the boundary line may be crossed. And yet that which has thus taken place unconsciously, may afterwards assert itself in consciousness. In like manner, when we listen in a state of abstraction to some one speaking to us, we may not until long afterwards become conscious of what he has said. It is only by the express direction of attention that the impressions unconsciously received are here raised above 'the threshold'." (*Ibid*, p 76)

(5) Unconscious influences often affect our feelings.

(5) "Unconscious impressions play an especially large part in the development of the feelings. Feeling is determined not only by clear and distinct sensations and ideas, but also by imperceptible influences, the sum of which only takes effect in consciousness" (*Ibid*, p 77). Love and other feelings, which exert so powerful an influence upon our conscious life, are often a quiet growth

in us out of experiences beyond the bounds of clear consciousness

(6) We find in dreams a phenomenon which stands, as it were, in the middle between unconsciousness and consciousness In dreams we have not the active control and regulation which is illustrated in waking life ; but, with this difference, we find important points of similarity : (a) both admit of several degrees of energy, clearness, and distinctness, there being, perhaps, as many degrees of sleep and shades of transition from sleep to waking, as *vice versa* ; (b) both illustrate connection and consecution, though in different degrees , and (c) both reveal the close connection of imagination with actual experience or outward facts. Dreams can often be traced to recent experiences or facts which lately engaged our attention In some cases, dreams have their origin in sensuous experience, which reveals that even during sleep some dim susceptibility is left to outward impressions and thus brings out the close connection between sub-consciousness and consciousness, between what may be called a remnant of waking state and the dream-state If, for example, "the breathing is unusually easy and free, we think we are flying , if it is difficult, we are oppressed with nightmare. If the sleeper becomes cold through losing the bedclothes, he finds himself on a journey to the north pole or promenading the streets naked A man who had a hot-water bottle at his feet dreamt he was walking on the crater of Mount Etna...The dream-state shows us, then, psy-

(6) The dream-state may be conceived as lying between consciousness and unconsciousness.

chological laws in operation, but below the threshold of consciousness proper. It is a station on the road from unconscious to conscious life" (*Ibid.*, p. 79.)

(7) The fact that we are more easily awakened by circumstances bearing on our interests, brings out that some remnant of consciousness is left even during sleep.

(7) "In the act of awaking there are sometimes circumstances which may throw light on the relation between the conscious and the unconscious. When we are awaked, it is not always the physical strength of the stimulus which determines the event, but its relation to the weal and woe of the individual, to his waking interests, what Burdach has called the psychical relation of the stimulus. An indifferent word softly spoken does not rouse from sleep, but a mother will wake at her child's slightest movement. A very avaricious man was awoken by a coin being placed in his hand. A naval officer, who slept inspite of a great tumult, awoke at the whispering of the word 'signal.' (*Ibid.*, p. 80.) This may be explained by supposing either that some discrimination is left even during sleep (so that the mind is able to distinguish between sensuous percepts) or that an impression (which otherwise would have been in the sub-conscious region) rises to consciousness when it connects itself with the other experiences or interests of our life [*Vide Chap. XI, § 4*]

§ 10 Exercises.

1. Define Consciousness. Can a real definition be given? Indicate its different grades and degrees
2. Explain the nature of Consciousness, describing its main characteristics
3. What is the object of Consciousness? Are we always

conscious? Discuss the relative claims of 'Unconscious Mental Modification' and 'Unconscious Cerebration'

4. What does Consciousness reveal as to the nature of the Self?

5. What different meanings have been given to the term Consciousness? and what discussions have arisen out of these ambiguities?

6. Explain in what sense you would use the word Consciousness Distinguish between (a) Consciousness and Sub-consciousness, and (b) Consciousness and Self-consciousness.

7. Discuss the grounds for the assumption of Sub-consciousness

8. What do you mean by the Relativity of Consciousness? Does it preclude a knowledge of the real nature of things?

9. Explain the following :—Unity of Consciousness, Forms of Consciousness, Duality of Consciousness, Field of Consciousness, Self-consciousness, Introspection.

10. "I cannot know, feel, or will, without at the same time knowing that I know, feel, will them." To what extent has this been disputed as a psychological fact? Examine the metaphysical inferences that have been drawn from it.

11. What do you understand by the Unity and Continuity of Consciousness Distinguish between General and Special Continuity

12. Indicate the conditions of Consciousness, explaining those that are psychical.

CHAPTER V.

FACULTIES, FUNCTIONS AND LAWS

§ 1 Elements and Classification of States of Consciousness A science aims at explaining its subject matter, and explanation involves analysis and classification. To explain a fact we must at the outset break it up into its constituent elements and refer them to their appropriate classes, before discovering their laws or modes of combination. To explain mental phenomena, therefore, we must first analyse and classify them. In fact, states of consciousness, as noticed by us in adult life, are more or less complex. "Human consciousness, in the only form in which it can be examined and described," observes Mansel, "is a compound of various elements, of whose separate action, if it ever existed, we retain no remembrance, and therefore no power of reproducing in thought Our personal consciousness, like the air we breathe, comes to us as a compound, and we can no more be conscious of the actual presence of its several elements than we can inhale an atmosphere of pure azote." (*Metaphysics*, pp 50-51) The states of our consciousness are ordinarily viewed as made up of *three elements*—cognition, feeling, and striving. These three elements enter, in varying proportions, into all concrete mental states which are thus classified, not by reference to their contents—for they all illustrate the three

Psychology
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explaining
mental
phenomena
and so at
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classifying
them.

Mental states
as known to
us are all
more or less
complex,
involving
elements of
cognition,
feeling, and
striving

factors,—but by reference to their relative composition "Properly speaking," Hoffding writes, "it is not the phenomena of consciousness or the states of consciousness themselves which are grouped and classified, but the elements which on closer examination we find in them, since by psychological element we understand the different sides or qualities of the states or the phenomena of consciousness. When intellection and feeling are contrasted with one another, all that can be meant is the contrast between states with preponderating ideational-elements, and states with preponderating feeling-elements" (*Psychology*, p 88) Thus, we classify mental phenomena by reference to their *predominant features as compounds* and not according to their separate natures as simples

They are thus
classified by
reference to
their pre-
dominant
characteristics
as compounds

✓ Consciousness was regarded by Reid and Stewart as a faculty co-ordinate with the other Intellectual Powers. It was believed to take cognizance of their operations or exercises but not of their objects. Thus, from this stand-point, Consciousness gives us a knowledge of perception or recollection but not of the thing perceived or recalled. It is clear, however, that this position is quite untenable, since Consciousness is the general condition of all mental exercise and can never be regarded as a special faculty co-ordinate with the other faculties. Moreover, how can there simply be a knowledge of a mental exercise without a simultaneous knowledge of its objects? Consciousness, in giving us a knowledge of perception or recollection, reveals at the same time the thing perceived or recalled.

Consciousness
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Reid and
others as a
special
faculty;

but this view
is untenable.

Consciousness
is the expres-
sion of
mental
energy.

Consciousness, as we have said, is but the expression of mental energy, which manifests itself in different forms and degrees on different occasions.

§ 2 The Mental Faculties and Their Mutual Relation To account for the three psychical elements, three faculties—Intellect, Feeling, and Will—are attributed to the mind. These faculties, however, are not distinct entities or agents presiding over distinct spheres of our mental life; they merely indicate different forms of exercise of one and the same mind. “It is admitted by all,” says Dr Gutberlet, “that a faculty is not a force, distinct from and independent of the essence of the soul, but it is the soul itself, which operates in and through the faculty” (*Psychology*, p. 4.)

The three faculties—Intellect, Feeling, and Will, supposed to explain all mental phenomena are but different exercises of the same mind.

The unity of mind explains the close connection among the different faculties, which are but its varying moods.

The unity of mind is the real explanation of the close connection existing among the different faculties. If mind be one, there can never be one phase of it, revealed in one case, to the total exclusion of the rest. The general lineaments of the mind are to be read in all psychoses, though some one feature may stand out more prominently than the rest owing to the prominence or vigour of the special form of exercise put forth on any occasion. Hence the close connection revealed among the several faculties. In solving a problem, the intellectual exercise is prominently illustrated, no doubt, but there are also the elements of feeling and will in the shape of interest and concentration. In feeling sympathy for a beggar, the affective side stands out distinctly, but the other two factors are also present, without discrimination.

and attention there can be no sympathy, which in its turn prompts to action. Similarly, in plucking a fruit or watching the movement of a planet, the active side is obvious enough; but the other two sides are also involved in the shape of interest or impelling motive and knowledge of the connection between the action performed and the end to be realized. Thus, the several faculties or mental exercises are bound together with the closest ties of vital connection.

There is, however, not merely a relation of connection, but also one of opposition among the several mental faculties or operations. An intense or vigorous exercise of one precludes, for the time being, a similar exercise of the rest. Calm contemplation is not consistent with acute feeling and energetic action. Intense feeling, likewise, bewilders intelligence and paralyzes will, and a vigorous action prevents reflection and enjoyment at the time. Thus, a rise in the intensity of one form of exercise means a fall in that of the rest, and, as Sully says, "*no one phase can appear in its highest intensity without tending to eclipse for the time the other phases.*" (*Outlines*, p. 37.) This relation of opposition among the mental operations is quite consistent with the law of conservation or persistence of energy—the total amount of psycho-physical energy remains constant, so that, if more of it be expended in one direction, less of it must be left for the rest. Hoffding writes, "The more energy an individual expends on the one kind of reaction; the less can he expend on the other. This

The faculties are related also by opposition, so that an intense exercise of one precludes an equally intense exercise of the rest

This is consistent with the law of conservation of energy.

truth is strikingly illustrated in Saxe's well-known tale of the different effect which the news of the murder of Regnier Lohring produced on his sons: he in whom the emotion was weakest had the greatest energy for action" (*Psychologe*, p. 99.) The truth of this remark is illustrated not merely in the varying conditions of the life of an individual, but also in the differences among individuals and nations. An individual or a nation having a marked intellectual or emotional temperament cannot possess the other features to the same degree. There is difference between a Hamlet and a Hotspur, a Porcupine and a Miranda, a Judithshirra and a Bheema, no less than between an Italian and an Englishman, an Englishman and a Highlander, or between a Highlander and a Hindu. Nor can culture or education do otherwise than can only be diversion, but no creation, of energy. The culture of the feelings, pushed to the extreme, would preclude an equal development of intelligence and will, and so with regard to the rest. Similarly, a special form of intellectual, emotional, or volitional exercise, manifested prominently, would prevent a similar exercise of the other forms of the same faculty. Intense sensuous enjoyment may, for example, deaden the higher sentiments, and memory cultivated to an extraordinary degree may blunt the understanding. This limitation is due to the fixed fund of mental as well as of nervous energy. Bain remarks, "The limitation of the acquirements possible to each person has been repeatedly noticed. There are reasons for believing that this limitation has for its

It is thus
viewed in
individual
and national
life.

There may be
diversion, but
no creation,
of energy.

physical counterpart the limited number of the nervous elements. Each distinct mode of consciousness, each distinct adhesive grouping, would appear to appropriate a distinct track of nervous communications, involving a definite number of fibres and of cells or corpuscles, and numerous as are the component fibres and cells of the brain (they must be counted by millions) they are still limited, one brain possesses more than another, but all have their limitations" (*Mental and Moral Science*, p. 126)

It should not, however, be inferred from the above that one form of mental exercise precludes the rest, this would be inconsistent as shown above, with the true character of mind as a unity. The exercise or development of one phase of mind must involve the due exercise or development of the other connected phases, though, in the degree of exercise or development, the mental operations generally vary inversely. Thus, mental unity accounts for the connection, while the limitation of psycho-physical energy explains the opposition, among the mental faculties or operations.

§ 3 Fundamental Mental Functions The doctrine of mental faculties, as explained above, does not seem to be final. We admit the existence of different faculties to account for facts of consciousness which differ in their predominant features. Now, what are these differences of mental states, to explain which we have recourse to the hypothesis of mental faculties? What are the traits or features which justify us in supposing the presence of this or that faculty? Psycho-

Thus, the relation of connection and opposition among faculties is due to psychological unity and limitation

The classification of faculties rests on the essential

difference among the different mental functions

The fundamental intellectual functions are assimilation, discrimination, and association.

doctrine
of func-
tions
con-
sidered
with concep-

logical analysis betrays that (*a*) the facts of consciousness referred to Intellect are characterized by assimilation, discrimination, and grouping or association, (*b*) those that are referred to Feeling are characterized by (mental and physical) perturbation or agitation, which is seldom of a neutral character, but is generally of the form of elation or depression, pleasure or pain, and (*c*) those which are referred to Will are marked by activity for some conscious end in view. Thus, the several intellectual faculties (*vis.*, Perception, Imagination, and Thought) are all characterized by assimilation, discrimination, and association, though in different degrees of refinement and complexity, according to the character of the materials upon which they are exercised. In Perception, for example, we distinguish, identify, and associate representative-representative groups, while in Imagination the same functions are exercised upon representative (but individual or concrete) materials; and in Thought they are exercised upon abstract or general features alone. And, because all these psychoses illustrate the same functions, they are referred to the same faculty or operation of the mind. An inner bond is thus discovered among the so-called distinct intellectual faculties, such as Perception, Memory, Imagination, Conception, Judgment, and Reasoning, and this inner connection bespeaks unity of origin of these faculties. The doctrine of functions is thus more in harmony with the organic unity of mind than the theory of distinct and independent faculties. Similarly, in

the case of Feeling, the fundamental functions of pleasure and pain are seen to run through the various forms of Sense-feelings, Emotions, and Sentiments, and in the case of Conation, active disposition and conscious pursuit of an end characterize its different forms. Functions are thus the elementary operations of the mind which are revealed, more or less prominently, in the states of consciousness, and the unity of mind explains the close connection of the several functions.

A word of explanation is here needed to show why assimilation, discrimination, and grouping go to constitute one Faculty (Intellect), pleasure and pain, another (Feeling); and action for some conscious end in view, the third (Will or Conation), and not otherwise. There is, so to speak, a vital or organic connection among the functions constituting a faculty : they are parts of one whole which are implicated in one another. When we assimilate, for example, a sensation as colour, we discriminate it from sound, taste, *etc.*, and we connect or associate it with other experiences related by way of succession or co-existence. Similarly, pleasure and pain are intelligible only in relation to each other it is the transition from or to an agreeable or disagreeable condition that gives rise to what we call pain or pleasure. Thus, we see that pleasure or pain is not so much an integral part of discrimination, as assimilation or association. Hence is it that we view assimilation discrimination, and association as constituting a single faculty, *viz.*, Intelligence; pleasure and

tion of mental unity than the doctrine of faculties Fundamental functions of feeling are pleasure and pain, while those of conation are active disposition and conscious pursuit of an end. Owing to mental unity the several functions are closely connected.

The functions constituting a faculty are organically connected.

pain, as constituting Feeling, and action for a conscious end in view, as Will.

§ 4 The Primordial Faculty or Function

Since the time of Aristotle till the middle of the eighteenth century the classification of mental faculties in vogue was a twofold one, *viz.*, Intellectual and Active Powers. The older psychologists regarded Feeling either as obscure cognition or as vague impulse and will. And, when we remember the course of mental development, both in the individual and in the race, we are not surprised at the result. Feeling is less connected with the external world than Intellect and Will. Feeling is pre-eminently a subjective condition which, though affecting our knowledge and action, never appears by itself as an object. Hence, consistently with the law of mental development, it is but natural that psychologists should at first lose sight of Feeling we notice outer objects first and inner experiences next, and hence Intellect and Will, which have generally to do with outward objects and results, were recognised before Feeling which, as Hoffding says, is but "an inner illumination falling on the stream of sensations and ideas." (*Psychology*, p 89.) The existence of Feeling as a third Faculty was first mentioned by Tetens (1736-1805), a German Philosopher of the 18th century, and it was emphasized by Rousseau (1712-1778) and popularized by Kant (1724-1804).

Older
psychologists
recognised
only Intellect
and Active
Powers,

to which
Feeling was
added by
philosophers
of the
eighteenth
century

All the
faculties,
—, are
regarded

Though, since the 18th century, the threefold classification of mental faculties is generally accepted, yet all the three are not viewed by all a

equally primordial and necessary (1) Some (e.g., Horwicz) hold that Feeling is the primitive fact out of which the entire conscious life ultimately develops In support of this position it is said that feeling alone (*a*) appears first and disappears last in the life of an individual, and (*b*) constitutes the common feature in the lives of several grades of animal existence, however, much these may vary in respect of intelligence and choice (*c*) Moreover, feeling, as the innermost and most interesting side of life, is, as it were, the most vital part of our being to which the other sides of our nature minister (2) Others content that the active

is equally fundamental.
(1) Some
hold that
feeling is
primordial.
(Horwicz)

side of our nature is primal and fundamental while the other sides are accessories to it. (*a*) Bain, for example holds that spontaneous or random activity is the primitive fact of our life which gives rise to muscular sensations with their affective, cognitive, and conative features He writes, "The reasons are—that movement precedes sensation, and is at the outset independent of any stimulus from without, and that action is a more intimate and inseparable property of our constitution than any of our sensations, and in fact enters as a component part into every one of the senses, giving them the character of compounds, while itself is a simple and elementary property" (*Mental and Moral Science*, p 13) Höffding similarly writes, "If any one of the three species of conscious elements is to be regarded as the original form of consciousness, it must evidently be the will In the instinct but slightly raised above

(2) Others
maintain that
the active
side is
fundamental.
(Bain and
Höffding)

reflex movement, is given the primitive form of consciousness, and in this the element of will is evidently the strongest, the intellectual and emotional elements acquire significance only as links in the chain that leads to action. Afterwards, too, the will forms at all stages the constant basis" [*Ibid.*, p. 99] (3) others again (*e.g.*, Ward) hold Intellect to be the primordial factor, the other two faculties depending, more or less, on it.

(3) Others again take intellect as the primitive factor.
 (Kant and Ward.)
 The last of these views seems to be tenable, for both Feeling and Will pre-suppose discrimination and assimilation.

A careful survey of the facts of consciousness seems to justify the view that cognitive energy, whether in a clear or an obscure form, is the *sine qua non* of mental life (a) Feeling, far from being a primitive fact, always presupposes and involves discrimination. As Ward says, "If by feeling we mean a certain subjective state varying continuously in intensity and passing from time to time from its positive phase (pleasure) to its negative phase (pain), then this purely pathic state implies an agreeing or disagreeing something which psychologically determines it. The simplest form of psychical life, therefore, involves not only a subject feeling but a subject having qualitatively distinguishable presentations which are the occasion of its feeling" (*Encyclo. Brit.*, XX, p. 41) Further, the experience of feeling involves the discrimination of pleasure and pain. (b) Will, likewise, implies intelligence · voluntary action involves choice, and choice presupposes discrimination of motives, movements, and circumstances. Even the life-preserving movements (*e.g.*, expansive movement for assimilating food, and contractile

movement for warding off attack) of monera, the lowest forms of animal existence, involve a rudiment of intelligence Schneider writes, "In the search made by the creatures (*i. e.*, the protozoa) for food, it is plainly seen that they are capable of making certain distinctions, a capacity without which touch would have no object, could scarcely be called touch. Hand in hand with locomotion in search of food goes of necessity the formation of a discrimination among different directions, *i. e.*, a discrimination of the pleasant direction (that in which the object of food is found) from the relatively less pleasant, and this distinction once present, the direction whence danger comes is readily discriminated from the contrary one." (*On the Development of the Expressions of Will in the Animal Kingdom*, p. 183.) Thus, though, as a matter of fact, the three faculties always go together, yet if any question of priority be raised, the cognitive energy would seem to be the primordial and fundamental. Kant has very well indicated this position by maintaining that Reason supplies the principles for the regulation of every mental operation.

If, again, in the case of Intelligence, it be asked which of its three functions may be regarded as primal and original, then the reply would seem to be, assimilation. This assimilation, however, is not such as presupposes difference or discrimination it is of the character of dull uniformity or vague monotonous experience. It does not mark the region of clear consciousness, but only its

Thus, in case of dispute, Intellect seems to be the fundamental faculty.

And, of the three intellectual functions, assimilation seems to be the primordial factor.

possibility by the emergence of difference If, as we have seen, consciousness is essentially one, admitting of infinite degrees, then the primal assimilation indicates rather a potential than a kinetic stage As Ward remarks, with regard to infancy, "The further we go back, the nearer we approach to a total presentation having the character of one general *continuum* in which differences are latent There is, then, in psychology, as in biology, what may be called a principle of 'progressive differentiation or specialization' Objective continuum forming the background to the relatively distinct presentations elaborated out of it" (*Ibid.*, p 42) And there is wonderful unanimity of opinion on this point among psychologists of all ages Aristotle, for example, remarks, "Children at first call all men *father*, and all women *mother*, but afterwards they distinguish one person from another" Sully also observes, "Assimilation (likeness) precedes discrimination (difference) in the development of the child Crude assimilation undoubtedly progresses in advance of discrimination On the other hand, assimilation as a *precise process* involves discrimination While, however, differentiation thus circumscribes the area of exact assimilation, assimilation reacts upon differentiation It is through the interest awakened by an element of the old or familiar in new impressions that attention comes to be directed to these, and so the differentiating process to be carried a step further If I did not recognise something familiar in this colour-group, this voice, and so forth, that

Testimonies
of Ward,

Aristotle,

and Sully

is, partially assimilate it, I should not scrutinize it so carefully, and so grow aware of its finer points of difference" (*Psychology*, p. 102.)

§ 5 The Laws of Mind. "The problem of psychology," remarks Ward, "in dealing with its complex subject-matter is in general—first to ascertain its constituent elements and secondly, to ascertain and explain the laws of their combination and interaction." (*Encyclo. Brit.*, XX, pp 38-39) We have already considered the first problem. Let us now turn our attention to the second. The facts of consciousness, as known to us in adult life, are, as we have seen, all, more or less, complex. Analysis of these facts reveals their elements as well as the laws of their combination. (*Vide Chap I*, p 67.) A law is but a precise statement of a uniform relation existing among the phenomena of a certain class. When we find, for example, material bodies attracting one another in a uniform way, we express it as the law of gravitation. Similarly, when we detect a uniform relation among certain psychical facts, we formulate it as a mental law. Thus, when we find that presentations occurring together or in close succession tend to revive one another, we enunciate the law of contiguous association.

"Psychological laws," as Sully observes; "like those of physical science, seek to account for a phenomenon by formally enumerating the conditions, which taken together, result in its production." (*Psychology*, p. 39) As, however, consciousness is conditioned not merely by psychical antecedents

A law is the expression of a uniform relation among certain phenomena.

Psychological laws aim at explaining mental phenomena by reference to their conditions,

which may be either psychical

or other than psychical.

Mental Laws may be either general or special,

and may indicate either proximate or remote conditions.

Sometimes reference to very remote conditions is necessary for adequate explanation.

ousness

but also by those that are physical or physiological, psychological laws include (*a*) those that pertain to mental facts alone (Mental Laws in the strict sense, e.g., laws of association) and (*b*) those that explain the relation of mental phenomena to physical or to physiological conditions (Mental Laws in a wide sense, e.g., 'a sensation' increases as the logarithm of its stimulus', 'cerebral excitation is essential to memory').

Mental laws, again, may be either (*a*) *general*, which embrace a wide range of facts and hold good in the case of almost all psychoses (e.g., 'exercise strengthens a faculty'; 'vigorous condition of the brain is favourable to mental impression'), or (*b*) *special* which express a relation among a limited group of facts (e.g., 'revival is essential to construction,' 'peripheral sensory stimulation is essential to sensation') Further, mental laws may refer to either (*a*) proximate or (*b*) remote conditions [e.g., suggestion is essential to revival (a proximate condition), presentation or prior experience is a ground of representation (a remote condition)]. Adequate explanation of psychoses sometimes leads us to refer to laws implying very remote conditions, e.g., when we attribute the prompt obedience of a soldier to his early training or the idiosyncrasy of an individual to heredity. Mental laws are, thus, general and important truths regarding the mind, which help us to explain the composition or genesis of psychoses.

§ 6 The Mental Principle The foregoing remarks must have made it clear that our

consciousness is the expression of an essentially active principle, which is primarily cognitive. "Activity," remarks Hoffding, "is a fundamental property of conscious life, since always a force must be presupposed, which holds together the manifold elements of consciousness and unites them into the content of one and the same consciousness." (*Psychology*, pp. 99-100.) In fact, all psychical phenomena, whether cognitive, affective, or conative, involve more or less this active factor in the shape of attention. "The subjective relation of objects," writes Ward, "involves attention including what we call inattention. Attention so used will thus cover part of what is meant by consciousness,—so much of it, that is, as answers to being mentally active, active enough at least to receive impressions."

It may be mentioned in this connection that *Memory*, which is regarded by Bain as a fundamental intellectual function, is merely an expression of this active principle. Facts retained are such as excited some degree of attention, however faint. And, if the law of conservation of energy be accepted as having a universal validity, then it is but natural to expect that mental energy exercised upon a particular fact should persist in the shape of memory or retentiveness, and generally the degree of persistence is proportionate to the degree of attention. Memory is thus not a part of the intellectual process itself—not a function, it is rather an indispensable condition of every psychosisis. Mental progress is impossible without it.

an active
synthetic or
unifying
principle.

Memory,
instead of
being a
fundamental
mental
function, is
rather a
condition of
mental
exercise and

is essential to
mental
development

A mind not at all retaining what is experienced can hardly be supposed even to identify, distinguish, or associate things, or to be affected by pleasure or pain, or to be moved to action. And as consciousness, in the form in which we are aware of it, always implies progress, it involves memory in a more or less palpable form. Memory is at once the effect of a mental exercise and the indispensable condition of a subsequent successful and refined use of a faculty.

§ 7 Exercises

- 1 Criticise the three-fold division of mental phenomena into those of Feeling, of Intellect, and of Will, with a view to show whether in your opinion the division is exhaustive or ultimate
- 2 Determine the relation of Consciousness to the Mental Faculties. Explain and examine the views of Reid and Stewart on this point
- 3 Discuss the question whether feeling precedes knowledge or knowledge, feeling, giving your opinion with reasons
- 4 Distinguish the main classes of mental processes and show the general connection between them. Which is to be regarded as the most fundamental of these modes of consciousness?
- 5 Criticise the old "Faculty-Psychology". Distinguish between Faculties and Functions
- 6 Explain and examine the view of Bain that Memory is a fundamental intellectual function
- 7 What is meant by the Laws of Mind? How are such laws discovered?
- 8 Distinguish between General and Special Laws. Indicate some of the most important laws of mind.

CHAPTER VI

ATTENTION.

§ 1 Definition of Attention We have already seen that cognitive energy constitutes the very essence of our mental principle. What we call consciousness is but an expression of this essence, and when it is specially directed to an object, it is called attention. Attention is thus a fundamental fact of our mental life, without which no experience is possible. It is involved, more or less, in every psychosis. In fact, attention is the application of the mind to an object present before it at the time. As Hoffding says, "It is precisely the gathering of energy round some one idea as the centre of association, that constitutes attention." (*Psychology*, p 315) Attention is thus a focussing of the mind—a narrowing of consciousness—on some definite and restricted area, which may be compared to the area of perfect vision. To attend to an object is to intensify consciousness with regard to it.

Attention
is the
concentration
of
consciousness
on a point.

It should be noted, however, that there are various *degrees of attention*, varying from the most intense form illustrated in rapt contemplation to cursory glances or fugitive impressions. The state of non-attention is marked by listlessness: it may be described as a condition of diffused consciousness or mental torpor. What is ordinarily called inattention is generally an instance of atten-

Attention
admits of
degrees.

tion, which is occupied with something else than the matter in hand

§ 2. Effects of Attention The human being, ever under the influence of a variety of stimuli, is ordinarily led, by the law of relativity, from object to object. (1) Attention *arrests*, however, this natural tendency to change. Hence Prof Ribot remarks that there is a "radical antagonism between attention and the normal psychical life". The normal condition may be described as one of "poly-ideism", when the mind rapidly passes from object to object, thus taking in several objects at a glance, as it were, while the condition of attention may be said to be one of "mono-ideism", because for the time being the flow is arrested and the mind is fixed upon a single object. This fixation, however, is only apparent what really happens is a series of rapid oscillations of attention round a central point, in examining a sample of cloth, for example, we now dwell on its softness, now on its texture, now on its colour, and so on (2) When an impression is thus detained before the mind, it becomes more (*a*) intense and (*b*) definite. When, for instance, we attend to the whisper of an individual while others are speaking, the whisper grows, as it were, in intensity, and becomes intelligible speech. (3) When an impression is thus known vividly and definitely, we retain it in our mind and are able to reproduce it when needed As Sully says, "attention and detention lead on to retention" (*Psychology*, p 94). The effect of attention, therefore, is

Attention fixes an object before the mind

and renders it more vivid, distinct, and clear

It helps also retention and reproduction

to give greater force, vividness, and distinctness to its object, thereby helping its revival in future.

§ 3. Positive and Negative Aspects of Attention The direction of attention to an object involves the withdrawal of attention from something else. When, for example, we attend to our lesson, we transfer our attention from something else which previously occupied our mind. This is merely an illustration of the law of conservation of energy, which implies that every work done is but a diversion of energy; psycho-physical energy, which is now employed in a certain direction, yielding a particular psychical content, is next employed in some other direction giving rise to a different mental phenomenon. Finitude means limitation, and conservation and concentration are but forms of it.

Thus, the direction of attention to an object implies (*a*) the adjustment of attention to it and (*b*) the transference or transition of attention from the object which engaged our attention before.

(*a*) Adjustment of Attention. An impression or idea becomes distinct in consciousness only when the process of adjustment is completed. This process occupies a certain time. It depends (1) partly on the character and more particularly on the force or intensity of the object itself: impressions of moderate or average intensity are in general more easily or rapidly seized by the mind than those of very great or very little force, and (2) partly on the preceding state and direction of attention, a state of mental watchfulness is favourable

Attention has a positive and a negative aspect represented by concentration or fixation and abstraction or withdrawal.

Concentration of attention involves its adjustment and transference.

(*a*) Adjustment requires time which is shortened (1) when objects are attractive and of moderate intensity,

and (2) when the prior mental condition is

one of
watchfulness

(b) Transfer-
ence becomes
easy when
objects are
related by (1)
similarity or
(2) contiguity

*Forms of
Attention*
(1) *Reflex and
Voluntary
Attention*
The former is
due to the
influence of
the object ;
while the
latter, to the
interest or
motive of the
subject

to attention generally, whereas lethargy or inattention and pre occupation of mind are unfavourable to it

(b) *Continuity or Smoothness of Transition* In order that the special direction of attention at any moment to an object *A* may favour the adjustment of it at the next moment to a second object *B*, there must be—(1) similarity between *A* and *B*, or (2) connection between them. By connection is here meant a relation of succession or co-existence

§ 4 Forms or Varieties of Attention

(1) *Reflex and Voluntary Attention* The distinction between reflex and voluntary attention is due to the fact that in the one case attention is determined by its object, while in the other it is conditioned by a desire or motive "Attention," writes Prof Stout, "so far as it follows upon an express volition to attend, is called *voluntary attention*. All attention which is not so initiated is *non-voluntary* or spontaneous. When we attend not merely without an express volition to attend, but in opposition to such a volition, attention is in the strictest sense *involuntary* and not merely non-voluntary" (*Psychology*, p 629) In non-voluntary attention, an object, by reason of some striking feature in it, forces its way, as it were, into the mind, while, in voluntary attention, the mind, for some purpose or end in view, addresses itself to a definite object, though otherwise it may be unobtrusive or unattractive. When a boy attends to a passing procession, the former is illustrated; while, when he attends to the preparation of his

food for the satisfaction of hunger, the latter is illustrated "The difference between voluntary and non-voluntary attention," writes Hoffding, "lies in this, that in the former the straining, the turning of the powers of the mind in a certain direction is present before the stimulus, while in the latter this straining is produced only by the stimulus itself" (*Psychology*, p 315) The two forms, however, are not radically distinct. We have already seen that some degree of mental activity is always involved in attention In the case of a vacant look, for example, though rays of light coming from objects impinge upon the retina, yet no psychical effect is produced, because there is no mental reaction in the shape of attention Thus, even in non-voluntary attention, there is some degree (however faint) of mental activity involved , but, as compared with the influence of the object, this activity is of subordinate moment Hence, such exercise of attention is called Passive, Reflex, or Non-voluntary Similarly, in Active or Voluntary Attention, though the mental strain is prominent, yet the influence of its object is not wanting In fact, no knowledge or consciousness is possible without the interaction of the two factors (subjective and objective) , and we call attention voluntary or non-voluntary according as the subjective factor is prominent or subordinate

It may be mentioned here that, corresponding to the general law of mental development to be explained hereafter, the progress of attention is from the non-voluntary to the voluntary type

The two forms are not radically distinct : they differ in their predominant features.

The progress of attention is

from the
non-voluntary
to the
voluntary

Circumstances
avouring
non-voluntary
attention in
early life.

The point of
transition
from non-
voluntary
to voluntary
attention.

(2) *Immediate*
and *Derived*
Attention.
In the former
the object is
interesting in
itself, while
in the latter
the interest is
due to
association

Non-volun-
tary attention
is immediate ;
and voluntary
attention,
derived.

Infancy is characterized by non voluntary attention , and voluntary attention gradually develops with the increase of experience. There are four principal circumstances which favour the exercise of non-voluntary attention in early life : they are— (1) the charm of novelty , (2) the absence of fixed interests, which characterize later life , (3) the natural vigour of the system and the consequent restlessness or mobility , and (4) the inability to bear the (mental and muscular) strain of concentration. Nevertheless, the rise of voluntary attention is of the highest educational value , and the transition from the one form to the other is illustrated when a child keeps his attention fixed on an object (to which the child at first attended quite in a non-voluntary way) with the expectation of deriving more pleasure from it.

(2) Attention has also been divided into *Immediate* and *Derived* Prof.—James writes—“Attention is immediate, when the topic or stimulus is interesting in itself, without relation to anything else , derived, when it owes its interest to association with some other immediately interesting thing. What I call derived attention has been named ‘apperceptive’ attention ” (*Text Book*, p 221) It may be mentioned in this connection that non-voluntary attention is always immediate, and voluntary attention is ordinarily derived Non-voluntary attention is always determined by present impressions or images, rendered attractive by their mere force or relation to instincts Immediate attention is thus generally non-voluntary ;

but it may wear a voluntary aspect at times, e. g., when we try to determine the distinctive characters of an attractive stimulus. Similarly, voluntary attention is generally derived : seldom is there the necessity for voluntarily directing our attention to interesting objects : an effort of attention is needed only when some remote or associated end leads us to attend to a thing otherwise uninteresting. Derived attention, however, is not always voluntary. When, for example, a stimulus, not exciting by itself, attracts our notice by reason of its connection or association with an inclination or settled interest, derived attention of the non-voluntary type is illustrated (e. g., when the attention of a mother is drawn to the scarcely audible voice of her exiled son). It is likewise illustrated in the case of ideas when they are interesting only as means to a remote end "The brain-currents, may then form so solidly unified a system, and the absorption in their object may be so deep, as to banish not only ordinary sensations, but even the severest pain." Dr Carpenter says of himself that 'he has frequently begun a lecture whilst suffering neuralgic pain so severe as to make him apprehend that he would find it impossible to proceed : yet no sooner has he by a determined effort fairly launched himself into the stream of thought, than he has found himself continuously borne along without the least distraction, until the end has come, and the attention has been released ; when the pain has recurred with a force that has overmastered all

The converse
of these truths
is not
necessarily
true.

(3) *Sensorial and Intellectual Attention*
 The former is directed to objects of sense, while the latter to representations or images

resistance, making him wonder how he could have ever ceased to feel it" (*Mental Physiology*, p 124)

(3) Attention has further been divided, by reference to its objects, into *Sensorial and Intellectual*, according as it is directed to objects of sense or mental representations, and the above remarks must have made it clear that both sensorial and intellectual attention may be either immediate or derived, or reflex or voluntary. The progress of attention, as indicated above, is generally from the reflex to the voluntary, from the immediate to the derived, and from the sensorial to the intellectual, type

§ 5 Limits of Attention The exercise of attention is limited or restricted in various ways. We cannot, for instance, attend to any number of objects at the same moment, nor can we keep our attention fixed on one and the same thing for an indefinite length of time. Moreover, we find that there are some objects which rivet our attention, and others which are repugnant to it. Thus, restrictions are due to—(1) the extent or scope, (2) the amount or continuity, and (3) the character of the objects, of attention.

The limitations of attention are due to (a) its extent, (b) amount or continuity, and (c) the character of its objects.

(1) *The Law of Limitation* implies that the intensity of consciousness varies inversely with its extent.

(1) *The Law of Limitation*, enunciated by Hamilton, expresses that the intensity of consciousness varies inversely with its extent thus, the wider the area of attention, the less effective it is. This law, however, does not imply that the number of things attended to may be indefinite or even very large. Properly speaking, a single object can enter the full focus of attention at the same time,

giving rise to vivid and clear consciousness (called 'apperception' by Wundt) "We know," writes Mill, "that two things are as much as the mind can easily attend to at a time" (*Logic*, Bk IV, Ch. II, § 3), though according to Hamilton, Wundt, and others, we can attend to six objects at once with a tolerable degree of distinctness. The largest number of objects, which we can attend to at a time, determines what is called the *area or span of attention*. This combining movement of attention, which enables us to apprehend several objects or features simultaneously, is known as *synthetic attention*, as distinguished from the selective or isolating exercise, which is called *analytic attention*. It is contended by Prof James and others that, in the case of synthetic attention, the several objects constitute but "a single phase of consciousness... so that, properly speaking there is before the mind at no time a plurality of ideas properly so called" (*Principles of Psychology*, I, p. 405.)

The area or span of attention is determined by the largest number of objects attended to.

The combining or synthetic exercise of attention should be distinguished from its isolating or analytic exercise.

(2) There is a limit also to the expenditure of psycho-physical energy involved in attention : we cannot, without relaxation, go on strenuously attending to things for an indefinite length of time ; nor can we keep our attention fixed upon an object for a long time. Sully writes, "The duration of the process of attentive fixation has its limits. It has been found that, when we try to attend for a considerable time to one and the same impression, the exertion does not remain of one uniform strength, but periodically rises and falls

(2) We cannot go on attending to things or to one and the same thing for an indefinite length of time

This is illustrated in the common experience that in listening to the ticking of a clock, or to the continuous sound of a waterfall, there is an alternate increase and decrease in the intensity of the sound. This fact of periodic rise and fall in the strength of attention has been called the *oscillation of attention*. (*Psychology*, p 86) This oscillation of attention is evidently due to the alternate fixation and relaxation or abstraction.

The periodic rise and fall in attention in any case is known as the *oscillation of attention*.

(3) Attention is limited also by the character of its objects as attractive or repugnant.

(3) Attention is also limited by its objects or stimuli (a) There are some objects, e.g. very powerful or attractive stimuli, which cannot but arrest attention. When, for instance, a stimulus (as a prey or pursuit) appeals to an instinct or an organised habit, it is very hard not to attend to it. (b) Similarly, there may be objects so very repugnant to the idiosyncrasies of individuals that, inspite of the utmost effort, they find it hard to attend to them. Prof James observes, "One snatches at any and every passing pretext, no matter how trivial or external, to escape from the odiousness of the matter in hand. I know a person, for example, who will poke the fire, set chairs straight, pick dust-specks from the floor, arrange his table, snatch up the newspaper, take down any book which catches his eye, trim his nails, waste the morning *anyhow*, in short, and all without premeditation,—simply because the only thing he *ought to* attend to is the preparation of a noon-day lesson in formal logic which he detests. Anything but *that!*" (*Text Book*, p. 228).

§ 6. Physiological Conditions of Attention.

The nerve processes involved in attention are (I) partly motor and (II) partly sensory ; and, as attention is the intensification of consciousness, the higher centres of the brain are exercised in every case.

processes involved are the (I) motor and (II) sensory centres of the brain.

(I) That the motor centres and nerves are specially exercised is evident from the performance of certain (*a*) adjustive and (*b*) inhibitory movements, which are helpful to attention. And this is true not merely in the case of (1) sensorial, but also in the case of (2) intellectual attention.

(I) The exercise of motor centres and nerves is illustrated in adjustive and inhibitory movements, both in

(1) In sensorial attention, for example, we accommodate the organs concerned and the connected parts (*e.g.*, the eyes or the ears and the head and neck in looking or listening)—sometimes even non-voluntarily or instinctively (as in turning our eyes towards a light). But, over and above (*a*) such adjustive movements, which promote the clear perception of objects, we perform also (*b*) certain inhibitory movements tending towards the same end [*e.g.*, we close the eyes when tasting or listening, we stop walking when looking at an object, and we hold our breath when eagerly expecting something (*Cf.* the expression ‘breathless suspense’)]. These movements are not confined merely to the special organs exercised at the time and their adjacent parts, but they generally extend over the whole body (not even excluding altogether the internal organs), giving rise to the characteristic attitude of attention. This implies that the motor currents underlying the movements, besides proceeding to the muscles of the organs concerned,

(1) sensorial

diffuse themselves over the whole system, affecting muscles generally and causing tension, which is taken as a mark of attention. It is to be borne in mind that this feeling of tension or strain, connected with the expenditure of the muscular energy, contributes materially to the active consciousness, which constitutes the essence of attention.

(2) In intellectual attention we similarly experience a tension, though, as Fechner points out, it is differently localized. Fechner writes, "I have, when I try to vividly recall a picture of memory or fancy, a feeling perfectly analogous to that which I experience when I seek to apprehend a thing keenly by eye or ear, and this analogous feeling is very differently localized. While in sharpest possible attention to real objects (as well as to after-images) the strain is plainly forwards and (when the attention changes from one sense to another) only alters its direction between the several external sense-organs, leaving the rest of the head free from strain, the case is different in memory or fancy, for here the feeling withdraws entirely from the external sense-organs, and seems rather to take refuge in that part of the head which the brain feels. If I wish, for example, to *recall* a place or person, it will arise before me with vividness, not according as I strain my attention forwards, but rather in proportion as I, so to speak, retract it backwards"

(II) That the sensory centres are also involved in attention is evident from the fact that the im-

pressions attended to become very vivid and clear. This local intensification of central activity is believed to be connected with a certain efflux of blood to the cortical centres concerned. Thus attention involves, not merely an exercise of the muscles to secure the clearest reception of an object, but also a stimulation of the appropriate cortical centres in order to produce a vivid and distinct impression. "Sensory accommodation," as remarked by Stout, "is not sensory attention, but only a means of sustaining and promoting it." (*Analytic Psychology*, I, p. 210.)

§ 7. Expectant Attention and Re-action Time. When the adjustment of attention completes itself before the presentation of an impression, attention may be said to be pre-adjusted. This is illustrated in what is called anticipation or *expectant attention*. Here attention is pre-adjusted to an idea or representation, rendering it to a great extent clear and vivid, and this idea coming to the help of a presentation expedites the perception or recognition of an object. Hence Lewes describes such an exercise of attention as *Pre-perception*. "Recognition (perception)," observes Hoffding, "naturally takes place more quickly and easily when we have ready in consciousness a preliminary idea of the phenomenon. The fusion of the sensation with the corresponding idea, whence perception arises, thus takes place in inverse order in voluntary and in involuntary attention. We see in great measure what we wish to see, and as a general rule are able to see only what we

centres is proved by the vividness and clearness of impressions.

Anticipation or Expectant Attention implies its preadjustment

It is called by Lewes 'pre-perception'

and is the source of illusions and hallucinations

Recognition is expedited by expectant attention, which is more or less perfect according as (1) the time, (2) character, or (3) both these features of an experience are known beforehand

"Reaction Time"

wish." (*Psychology*, p. 315.) Illusions and hallucinations are often the outcome of anticipatory attention. Fechner, for example, mentions that the patient, who is let blood, sometimes sees the blood flow before the lancet enters the skin

The consequence of expectant attention is, as has been proved by experiment, a shortening of the process of reception and recognition. The expectation may be of different degrees of perfection. Thus, we may know (1) either the time of the impression (*e. g.*, in listening to a new poem or a new musical composition), or (2) its nature or quality (of which again we may have either a vague anticipation or a distinct foresight), or (3) both its time and nature. In this last case the pre-adjustment may be said to be perfect. The effects of such pre-adjustment of attention on the rapidity of the process of perception have been measured by a number of psychologists. The method consists in estimating, by a delicate chronometric apparatus, the interval between the occurrence of the stimulation of a sense-organ and that of a volitional reaction. The whole period between the happening of the sensory stimulation and the execution of the movement is known as the reaction time. This time is divided into stages: (1) that occupied by the transference of the nervous excitation from the periphery to the centres, (2) that involved in the modification of consciousness, (3) that necessary to apperception or distinct apprehension by the direction of attention, (4) that taken up by the volitional process,

and finally (5) that required for the propagation of the motor excitation from the centres to the muscles. By varying the external conditions, as by letting the subject know, or leaving him in ignorance of, the quality of the impression, or the exact time of its occurrence, or both, this period is modified. Every circumstance, aiding the pre-adjustment of attention, shortens it, while every circumstance hindering this, lengthens it. Hence the fluctuations are regarded as due to variations in the period of apperception.

is shortened
by expectant
attention.

§ 8. Laws or Conditions of Attention. The circumstances regulating the direction of attention may be indicated thus :—

I. *Relation of Extent to Intensity.* When an equal effort is made, the effective force of an act of attention varies inversely as the extent of object attended to, *i.e.*, the more we comprehend or embrace in the act of attention, the less penetrating will it be. (*Cf.* Hamilton's Law of Limitation mentioned in § 5.)

I. With regard to the relation of the Extent to the Intensity of Attention we find that the wider is its sphere the less is its effective force.

II. *Conditions of Intensity.* The amount of attention exerted at any time depends on three factors.—

II. With regard to the conditions of Intensity we find that it depends on—
(1) the quantity of psycho-physical energy available at the time,

(1) *The quantity of active energy*, mental and physical, disposable at the time. Dr. Carpenter mentions how, during an action, a commander, tired and exhausted, fell asleep, for two hours, on the deck of his frigate, within a yard of one of his largest guns. Thus, most stimulating objects are not effective when we are fatigued and worn out.

(2) *Anticipatory pre-adjustment* is favourable

(2) the extent of anticipatory pre adjustment, and (3) the influence of the stimulus, which in its turn is determined by its (A) intrinsic character or (B) extrinsic worth.

(A) The intrinsic attractive character is due either (a) to absolute impressiveness or (b) to relative impressiveness
 (a) The absolute impressiveness depends on
 (i) the quality

or (ii)
 quantity of
 stimulus

to the subsequent direction of attention. A sudden presentation throws the mind out of its balance, as it were; while an object, for which the mind is prepared, is readily apprehended.

(3) *The influence of the stimulus* or force which excites attention. This last, *vis*, the attractive force of a stimulus, again, is determined either (A) by its intrinsic character or (B) by its extrinsic worth

(A) *The intrinsic attractive character* of a stimulus is due either (a) to its absolute impressiveness or (b) to its relative impressiveness

(a) *The absolute impressiveness* of an object includes its (i) quality and (ii) quantity

(i) *The quality of a stimulus* implies that it is adapted to our constitution and is thus fitted to call forth the responsive mental activity in the shape of attention. Some psychologists understand by 'quality' the pleasurable or painful character of a stimulus, which is supposed by them to be a determining condition of attention. But pleasure or pain is evidently a subjective effect which can be referred to objects only by transfer of epithet. The feeling-tone—being generally the subjective measure of adaptation—is rather the concomitant than the antecedent of mental exercise.

(ii) *The quantity of a stimulus* includes its degree, duration, extent, and number or repetition, each of which admits of quantitative measurement. A stimulus that is feeble or fugitive, or an object, which is very small and insignificant or is present-

ed but once, usually fails to attract one's notice. An elephant or the continued knock at a door, for example, is likely to attract our notice more than a goat or a single knock.

(b) *The relative impressiveness* of an object implies its attractive force due to its relation to other objects and to the pre-existing condition of attention. We are perplexed when we are allured by rival impressions. The absence of rivalry is thus conducive to the impressiveness of an object present before us, and, whenever we begin any serious work, we take due precautions against what we call 'interruptions.' An unvarying impression, however, if prolonged, fatigues the nerve-centre engaged, rendering it less responsive, and fails to produce a mental effect, change of impression is the condition of consciousness. The amount of change, which is ordinarily in direct proportion to the effect on attention, may be estimated in relation, not merely to other simultaneous or immediately preceding stimuli, but to a number of past impressions. *Novelty*, as a powerful force in childhood and a considerable force throughout life, is only an illustration of the law of change; it stimulates and excites the mind very much as a startling contrast. Nevertheless, mere novelty, though a powerful stimulus to attention and capable of leading on to curiosity, is rarely, if ever, sufficient to detain and fix attention in a prolonged attitude.

It is to be noted, however, that novelty, when going to the extreme, is opposed to anticipatory pre-adjustment and inconsistent with our prevailing

(b) The relative impressiveness of an object is due to its relation to other objects and to the preceding mental occupation.

Novelty has its charm ;

but what is
wholly new
fails to excite
interest.

interests ; an extremely novel object wears a weird or strange look and thus becomes repulsive, failing to rouse attention. What is absolutely strange, and consequently unsuggestive to the child's mind is apt to be a matter of indifference. While, therefore, the principle of change tells us that perfect familiarity with a subject is fatal to interest, the laws of intellectual interest tell us that a measure of familiarity is essential. Herbart mentions the following anecdote — "I remember classes in which, instruction being uninteresting and discipline relaxed, a buzzing murmur was always to be heard, which invariably stopped for as long a time as an anecdote lasted. How could the boys, since they seemed to hear nothing, notice when the anecdote began ? Doubtless most of them always heard something of the teacher's talk but most of it had no connection with their previous knowledge and occupations, and therefore the separate words no sooner entered their consciousness than they fell out of it again , but, on the other hand, no sooner did the words awaken old thoughts, forming strongly-connected series with which the new impression easily combined, than out of new and old together a total interest resulted which drove the vagrant ideas below the threshold of consciousness, and brought for a while settled attention into their place."

(B) The
extrinsic
attractive
force is due
to borrowed
,

(B) *The extrinsic attractive force* of a stimulus is due to its borrowed interest . when an object has nothing in it to rouse our attention, but it attracts our notice only by reason of its association

with something else, then the object illustrates derived interest. A broken toy or a dilapidated building, for example, may be left unheeded ; but when we are told that our grandfather' or father played with the one and our ancestors lived in the other, then these very objects acquire by association a charm which rarely fails to excite attention. What we have described above as familiarity, limiting the operation of novelty to a great extent, illustrates also derived interest , an object is familiar because it is bound up with past experiences Stout, for example, writes—"I am somewhat deaf, and when conversation is going on among a considerable number of persons I am usually unable to hear anything which is not directly addressed to myself with a distinct utterance by my immediate neighbour ; all the rest of what is being said around me is a confused murmur I sometimes find, however, that if any one even at some distance from me happens to refer to philosophy or any other subject in which I have a keen interest, his words disengage themselves from the chaos of sounds and fix my attention." (*Analytic Psychology*, I, pp 188-189)

It is
illustrated in
familiarity.

§ 9 Attention, Interest, and Genius. The word '*Interest*' has been used in at least three different senses

(a) It is used at times in the sense of what is conducive to our practical or theoretical ends, as when the preparation of food is said to be of interest to the hungry, or a diagram helping the solution of a problem is said to be of interest to a

The word
'Interest'
is used in at
least three
senses :

(a) What
satisfies the
instinct or
furthers an
end.

geometrician. Similarly, we talk of water as of interest to the thirsty or of a prey as of interest to a carnivorous animal.

(b) A prevailing motive, as determined by agreeable experience

(b) The term interest is used also in the sense of a prevailing motive or dominant inclination as determined by agreeable experience. "In its most common use," writes Stout, "the word interest stands for a permanent disposition or capability of being actually interested. Thus, we may say of a person that he is "interested in mathematics," although he may not at the moment be thinking of mathematics at all." (*Analytic Psychology*, I, p 225.)

(c) What touches our feelings—especially agreeable feelings

(c) But not infrequently interest indicates whatever touches our feelings—specially our pleasurable feelings. Thus, Sully writes, "When it is said that we attend to what interests us, it is meant that we attend when our feeling is touched, that is, to objects or ideas which directly or indirectly excite feeling" (*Human Mind*, I, p. 163)

Sully regards pleasure and pain as determinants of attention,

but, as Stout points out, they may pre-suppose attention

It is evident, then, that Sully regards pleasure and pain as determinants of attention "A bright colour", he says. "a sweet sound, and, on the other hand, a hard grating noise, attract the attention by reason of the feeling that they excite." (*Ibid*, p 162) But, as Stout points out, "The object attended to may be a means to the satisfaction of a desire, or an obstacle in the way of such satisfaction. In either case the pleasant or painful feeling involved, as springing out of the furtherance or thwarting of our practical aims, is coincident with the apprehension of the object, and of its significance for

us. It logically presupposes attention, and cannot therefore be an antecedent condition of it. This is especially obvious where the interest is theoretical ; we cannot feel satisfied with an object because it gratified our curiosity, or dissatisfied with it because it puzzles us, unless we have already begun to attend to it." Stout, accordingly, concludes—"The assumption that attention *depends* on pleasure-pain seems to have no sufficient basis. The relation is not one of cause and effect. The coincidence of interest and attention is simply due to the fact that interest, as actually felt at any moment, is nothing but attention itself, considered in its hedo-nic aspect." (*Analytic Psychology*, I, pp. 224-225.) But it may be remarked that though *primarily* attention is not conditioned by pleasure-pain, yet *secondarily* it may be so. Originally and ordinarily, no doubt, we attend to objects because they are relative to our wants, but, when we thus attend to them, we experience a pleasurable or painful feeling which may be described as the 'hedonic aspect' of attention. But the pleasure or pain once experienced may subsequently be fresh motives for attending to objects. Hence we cannot say that pleasure or pain is always or never the determining condition of attention, nor that it is originally so, if, however, later experience reveals that sometimes it is so, it is due to the widening influence of experience it is a matter of contingency, and not of necessity.

The *mark of Genius* is to explore the unknown and thus to throw a flood of light on the obscure by

Though, however, attention may not be primarily determined by pleasure-pain, yet secondarily it may be so determined.

happy strokes of imaginative insight and pertinacious adherence to a subject. A man of genius is able to hit upon a legitimate hypothesis or the right solution of a difficulty because he has a comprehensive grasp of his subject and can dwell on it for a long time by excluding intrusive or irrelevant topics. *Rapt* attention is the characteristic of genius. And, as Prof. James points out, "What is called sustained attention is the easier, the richer in acquisitions and the fresher and more original the mind. In such minds, subjects bud and sprout and grow. At every moment, they please by a new consequence and rivet the attention afresh. But an intellect unfurnished with materials, stagnant, unoriginal, will hardly be likely to consider any subject long. A glance exhausts its possibilities of interest. Geniuses are commonly believed to excel other men in their power of sustained attention. In most of them, it is to be feared, the so-called 'power' is of the passive sort. Their ideas coruscate, every subject branches infinitely before their fertile minds, and so for hours they may be rapt. *But it is their genius making them attentive, not their attention making geniuses of them.* And, when we come down to the root of the matter, we see that they differ from ordinary men less in the character of their attention than in the nature of the objects upon which it is successively bestowed. In the genius, these form a concatenated series, suggesting each other mutually by some rational law. Therefore we call the attention 'sustained' and the topic of meditation for hours 'the

*Rapt as well
as sustained
attention is a
mark of
Genius*

*It is genius
that controls
attention*

same.' In the common man the series is for the most part incoherent, the objects have no rational bond, and we call the attention wandering and unfixed." (*Text Book*, pp. 227 228.) It may be remarked in this connection that, however attractive or suggestive a subject may be which engages the attention of a genius, the very fact that there is a 'rational' bond among the objects of thought indicates that attention is regulated by reason and not by caprice, and the rational control reveals a degree of application and strength of will, rarely to be found in an ordinary individual who is at the mercy of casual solicitations.

and regulates
reason.

§ 10 Relation of Attention to Consciousness (1) Some writers (*e.g.*, Reid, Malbranche) hold that attention is a prior condition of consciousness. we can be conscious of a fact only when attention is directed to it "When two persons," says Reid, "are engaged in interesting discourse, the clock strikes within their hearing, to which they give no attention. What is the consequence? The next minute they know not whether the clock struck or not, yet their ears were not shut. The usual impression was made upon the organ of hearing and upon the auditory nerve and brain, but from inattention, the sound either was not perceived, or passed in the twinkling of an eye, without leaving the least vestige in the memory" (*Active Powers*, Essay II, Chap. 3.)

(2) Others (*e.g.*, Stewart, Condillac) contend that consciousness itself is a condition of attention: to attend to an object we must previously be ~on-

(1) Some hold
that
Attention is
a prior
condition of
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ness, while

(2) others
contend that
Conscious-
ness is a prior

condition of
Attention.

scious of it, otherwise how shall we direct our attention to it? "The true state of the fact," writes Dugald Stewart, "I apprehend, is, that the mind may think and will, without attending to its thoughts and volitions, so as to be able afterwards to recollect them. When two persons are speaking to us at once, we can attend to either of them at pleasure, without being much disturbed by the other. This power of the mind to attend to either speaker at pleasure supposes that it is, at one and the same time, conscious of the sensations which both produce" (*Philosophy of the Human Mind*, Part II, Ch 2)

(3) An intermediate view is that clear and distinct Consciousness is co-extensive with Attention

(3) Others, again, rejecting these extreme views, maintain that consciousness in a clear and distinct form always involves attention. Mansel, for example, writes—"But whether, in the widest sense of the term consciousness, it can or cannot be correctly described as prior to and independent of the act of attention, yet in the narrower or more accurate sense, in which alone it can be the object of scientific analysis, attention becomes a necessary condition of its existence, or rather is identical with consciousness itself" (*Metaphysics*, pp. 135-36)

Though, however, it is true that clear and distinct consciousness always involves attention, yet it must be admitted that the range of the one is not identical with that of the other. We have already seen (*vide* Chap III, § 9) that there are grades of consciousness, and attention is but its intensified form. To assume attention as a distinct faculty

Consciousness is
tly

co-ordinate with consciousness and raise a question of their relative priority indicate an initial error. Attention, as Mansel says, is "consciousness in operation relatively to a definite object" (*Metaphysics*, p. 136.) Nor is it correct to hold with Stewart that "the one is an involuntary state of the mind, the other is a voluntary act" Consciousness, as we have seen (Chap IV, § 6), is not something passive, nor is it always 'an involuntary state'; it is essentially active, often involving volition. The difference between consciousness and attention is not one of kind, but one of dégréé, consciousness focussed is attention.

wider than attention,
which is but
its intensified
form.

§ 11 Nature and Importance of Attention. We have already seen that attention is a more or less concentrated form of consciousness. An important condition of such concentration is the absence of distracting circumstances. Within the limits of difference: too many objects tend to diffusion, and a single indistinguishable point fails likewise to secure concentration. Thus, as Ward remarks, "the most effective attention must be somewhere between the two zeroes of complete indifference and complete absorption. If there be an excess of diffusion, effective attention will increase up to a certain point as concentration increases, but beyond that point will decrease if this intensification continues to increase, and *vice versa*, if there be an excess of concentration." (*Encylo. Brit.*, XX, p. 71) Within these limits, however, the direction of attention to an object is determined, as we have seen (*vide* § 3 and § 8), by

Attention, as
we have seen,
is a
concentrated
form of
consciousness.

It is
essentially
intellectual

change or contrast, similarity and connectedness, which answer to the fundamental intellectual functions of discrimination, assimilation, and association ; and this brings out the radical unity of intellect and attention. This unity is further evidenced by the fact that curiosity and interest, so essential to attention, are ultimately based on intellectual conditions anything related by way of similarity, contrast, or contiguity awakens curiosity and excites interest. Prof. James writes—"The only general pedagogic maxim bearing on attention is that the more interests the child has in advance in the subject, the better he will attend. Induct him, therefore, in such a way as to knit each new thing on to some acquisition already there , and if possible awaken curiosity, so that the new thing shall seem to come as an answer, or part of an answer, to a question pre existing in his mind" (*Text Book*, p 228.)

Stout regards
attention as
essentially
conative ,

Stout, to explain the "prospective attitude" of attention, writes, "Conation is always passing forward towards its end , hence attention, which is nothing but conation defining itself in cognition, and so guiding itself by means of cognition, must also constantly be directed forward beyond the 'ignorant present' to meet what is to come. To attend is always to *watch*, to *await*, to be on the *alert*. When we take a light to lighten our path through a dark place, we use it to make out whether we are going, not where we have already arrived. It is to guide our future steps, not the steps we have already taken." (*Psychology*,

pp. 257.) But, it may be remarked that "the prospective attitude," not being of the character of blind appetency or vague craving, is more of the character of cognition than of conation, and the end of attention is not to propel, but to guide. Stout himself admits that "Attention is the light used by conation to make out its path" (*Ibid*, p. 257). If it is the light employed for guidance, it is of the nature of cognition. Stout adds, no doubt, that "attention is no external illumination, but is simply identical with conation considered in its cognitive aspect", but the very fact, that the *prominent feature* of attention is "to lighten our path through a dark place," shows that it is essentially discriminative and not impelling. That attention is primarily cognative energy is further proved by the following facts :—

(1) The expectant or prospective nature of attention bears the impress of an intellectual law. If identity or uniformity is a fundamental law of intelligence, we naturally expect the future to be like the present and anticipate an order among our experiences. In explaining the "prospective nature of attentive process," Stout writes—"It is always a pre-adjustment for what is coming, and the pre-adjustment varies in its specific nature according to circumstances. If what actually occurs is that for which a specific pre-adjustment has been made, the mental activity proceeds smoothly and successfully without waste of energy. If on the other hand what actually occurs does not fit in with the pre-adjustment, there is a shock of disappointment

but, as it is always discriminative and selective, it may be viewed as essentially intellectual.

This view is supported by the following facts :

(1) The prospective character of attention is regulated by the law of identity, uniformity, or similarity, which constitutes the cardinal intellectual function.

and a waste of energy". (*Ibid.*, p. 290.) There is thus a definite pre-adjustment or expectant attitude determined by the law of uniformity. In accounting for the "feeling tone" or "hedonic aspect" of attention, Stout similarly observes—"Where the apprehension of the whole prepares and facilitates the apprehension of the parts, where the apprehension of one part prepares and facilitates the apprehension of another, and where the apprehension of the parts prepares and facilitates the apprehension of the whole, the total activity is pleasant, if it has a sufficiently varied field for its exercise. On the other hand, where at one stage of the process the mind is prepared for a certain kind of continuation and meets with another for which it is not pre-adjusted, the activity is unpleasant" (*Ibid.*, p. 289). It thus appears that attention is not a blind movement, but an intellectual tendency, illustrating the laws of expectation. Instead of describing it, therefore, as "conation considered in its cognitive aspect," it would be more appropriate to designate it as 'cognition ordinarily determined by conation.' And the significance of such a designation will be clear from the contents of the following paragraphs

(2) The distinction between voluntary and non voluntary attention implies that attention is not always volitional

(2) If attention be regarded as essentially volitional, then the distinction between voluntary and non-voluntary attention becomes unmeaning. Titchener writes—"There is only one attention, not two. The differences between passive and active attention are differences of 'degree' (*number of ideas, amount of effort*), not of 'kind'. The terms

'passive' and 'active' are misnomers. In passive attention, one idea takes unresisted possession of consciousness ; in active attention, there is a conflict of ideas for the favours of the attention. In the latter case, the experience of effort is pronounced and well-marked ; in the former it is present, but less strong. These are the only differences between the two forms of attention...Additional ground for thinking that there is no radical difference between passive and active attention is to be found in the fact that what begins as active attention may quite well end in passive. If we once 'settle down' to our work, we may grow so 'sunk' and 'absorbed' in it that the fire-bell passes unnoticed. This fact can hardly be explained by those who assume the presence of the activity-process in active attention, for why should that process disappear as attention is continued". (*Outlines of Psychology*, pp 130-32.)

We have seen (*vide* § 4) that attention always involves activity, which is of the character of cognitive energy. Though this is so, yet it is not correct to hold that the difference between passive and active attention is only one "of degree, not of kind". The common feature in both of them is the presence of cognitive energy ; but, with this point of community, there are important points of difference (a) The cognitive energy in the one case is called forth by the object and is regulated by it ; while in the other case the energy issues from within at the instance of the will for the accomplishment of a definite end and thus spends itself upon

The difference, according to Titchener, is one of degree and not of kind ,

but this view
is scarcely
tenable.

the proper object. (*b*) Consequently, as Titchener observes, "in passive attention, one idea takes unresisted possession of consciousness, in active attention, there is a conflict of ideas for the favours of the attention" In the one case, because one idea or object is present before the mind, it 'takes unresisted possession of consciousness' and thus exercises a dominating influence upon the mind; but, in the other, as there is a conflict or rivalry among contending ideas or objects, the mind has to choose from among them and thus to determine which one should get the ascendancy No doubt, in the case of such conflict, each of the rival objects passively attracts the attention at the outset, but, for the continuance or prevalence of any of them, it depends entirely upon the will When ordinarily we speak of 'attending to an object,' we mean this voluntary direction of attention will operating through attention focuses it on the required object, rendering it more vivid and distinct and thus attractive to the mind. Hence the educational value of well-regulated attention.

The transition of one form of attention to the other does not prove their identity, but only reveals their connection.

The 'additional ground', urged by Titchener for proving that 'there is no radical difference' between the two forms of attention, does not seem to be strong There are no impassable barriers among the different forms of mental exercise, it is not impossible, therefore, that active attention when continued, should pass into the passive form, though an 'activity-process' is involved in the former. The transition is quite natural and is due

to either of two causes :—(a) In the case of routine-work, the laws of habit require that the successive links of a chain be suggested automatically. the start is given by volition, and then the series passively engages the attention (a) In other cases, we may acquire a degree of interest in it, which of itself chains the attention, it subsequently exercises a sort of fascination The illustration given in § 4 (2) of Dr. Carpenter, beginning and continuing his lecture while suffering from neuralgic pain, is a case to the point. As every work attains to perfection, it lapses from the voluntary to the mechanical type (volition not being equal to the task of easy, quick, certain, and uniform execution). And, likewise, as the work of attention becomes perfect, it passes from the active to the passive form , what was previously done laboriously and under friction, as it were, is now achieved easily and smoothly. Titchener very well observes—"The reduction of active to passive attention is the condition of all thorough intellectual work. The passive attention of the animal or the child is the first stage of attentional development Then comes the active attention, during which the mind is held by a certain stimulus, but held in face of opposition from other stimuli. Finally, this stimulus gains an unquestioned ascendancy over its rivals, and the attention is once more passive The stage of active attention is itself a stage of transition, of conflict, of waste of mental energy ; but it is the necessary preliminary to a stage of achievement" (*Ibid.*, p. 132.)

As work attains to perfection, it becomes mechanical or non-voluntary.

Thus, the difference between reflex and voluntary attention is real and not merely nominal :

the one is object-determined and the other subject-determined.

Broadly speaking, attention is a general condition of our mental life ;

Hence it would seem that the distinction between reflex and voluntary attention is not merely one of degree, but of kind. When we say that the difference is one of kind, we do not mean that the one form of attention is cognitive, and the other not so, for both are forms of cognitive energy, but, in the one case, this energy is at the mercy of stimuli, while, in the other, it is at the command of the self. The one may be described as object-determined and the other as subject-determined; the one as stimulus-prompted, while the other as will-directed. And this is an important difference in kind and not in degree. Nay, in respect of degree, passive and active attention may often agree. The fascination or absorption illustrated in passive attention is scarcely inferior in degree to the severest form of active attention. And, if the test of attentional intensity be clearness and vividness of impression, then also we find that the two forms often resemble, as ideas and objects may be no less vivid and distinct in the one case than in the other.

✓ *The importance of attention* generally is that it is pre-eminently the condition of what we call our psychic life. As clearness and distinctness of an impression can be secured only by attention, a fact which is not attended to scarcely forms a part of our distinct consciousness, it may lie in the subconscious region or, at best, may form part of what James and Stout describe as a "psychic fringe".*

* "The special object of attention at any moment always has a psychic fringe; it is presented as a constituent part or aspect of

Thus our mental life, as known to us, is practically limited to the field of attention. But of immense importance is voluntary attention. By it we regulate our experience and thus determine the character of our mental life and development | Titchener observes—"It is difficult to imagine how life could go on, if there were no such thing as attention. We should be at the mercy of every stimulus, internal or external, which was strong enough to arouse a conscious process, sustained thought and continued occupation would be impossible, consciousness would be a mixed medley of sensations and affections, strung together as accidents of stimulation determined. The reality is very different. As I lean back in my chair to think out a psychological problem, I am subject to all sorts of sensory stimuli: the temperature of the room, the pressure of my clothes, the sight of various pieces of furniture, sounds from house and street, scents coming from carpet and wood work, or borne in through the open window, etc. I could easily lapse into a reminiscent mood, letting these impressions suggest to me scenes from my past life. I could easily give the rein to my imagination, thinking of the further business of the day, anticipating some event which is to happen in the near future, etc. But I am perfectly well able to neglect all these distractions, and to devote myself entirely to the one centrally aroused idea,—the idea of the problem some kind of whole. This whole itself may be only implicitly apprehended; it perhaps never completely appears in explicit detail. ...All identification or recognition implies a reference beyond the object identified or recognised". (Stout, *Analytic Psychology*, I. 182)

but the
importance
of voluntary
attention in
the regulation
of experience
is very great.

which awaits solution." (*Ibid.*, pp. 125-26) Ordinarily we understand by attention the higher form of its exercise, *viz.*, the voluntary or active type. But for this exercise of attention the lines of the poet would have been true—

"Men are the sport of circumstances, when
The circumstances seem the sport of men"

As a matter of fact, however, attention enables a man to be the master and not the creature of circumstances—the influence which an object exerts upon the mind is due to its ascendancy as a psychical fact and is thus ultimately determined by attention and not by circumstances. Mansel very well observes with regard to this exercise of attention—"This intimate union of the active with the passive functions of the human mind, this presence in every complete act of consciousness of a voluntary and personal factor—a permanent *self* in the midst of transitory modes,—exhibits man as in some degree the master of his own consciousness, and the author of the phenomena which it reveals to him. It is the exaggeration or exclusive consideration of this element which is the source of most of the extravagances of idealist metaphysics, as its neglect or suppression has given rise to most of the opposite extravagances of sensationalism" (*Metaphysics*, p 136)

Through
voluntary
attention
a man is the
master of his
circumstances

§ 12 Exercises

- 1 Define Attention Point out its different aspects and nervous conditions

2. Explain and examine the relative claims of Unconscious Mental Modification and Unconscious Cerebration.

3. Enumerate the laws of Attention, and point out its effects

4 Distinguish between Non-voluntary and Voluntary Attention; indicating the point of transition from the one to the other

5 What do you understand by Analytic and Synthetic Attention? Explain the circumstances helping their exercise

6 What is meant by Expectant Attention? When is it perfect?

7 Distinguish between the Positive' and Negative Aspects of Attention, mentioning the circumstances which favour its transference

8 Is it possible to keep Attention fixed on one and the same object for an indefinite length of time? What is meant by the Oscillation of Attention?

9 What is the relation of Attention to Consciousness? What do you understand by the Sub-conscious Region?

10 What are the characteristics and varieties of Attention? Distinguish between Sensational and Ideational Attention

11 Point out the Importance of Attention in the development of mental life Illustrate the use of Attention (1) as a fixing and (2) as a transferring force

12 What do you understand by the 'Span of Attention'? What is 'Reaction Time'?

13 Explain the action of Attention in Reproduction, in Constructive Imagination, and in the Control of Thought.

14 Give some account of the experiments that have been made to determine the time occupied by psychical process Do you think such investigations are likely materially to advance Psychology as a science?

CHAPTER VII.

SENSATION.

Sensations are usually taken to be the elements out of which Perception develops

§ 1 Sensation and Perception Sensations are usually taken to be the elements out of which Perception develops. Thus, it is believed that we must first have the experiences of taste, smell, touch, sound, colour, form, and size before we can know an object definitely. How can we, for example, perceive an orange before being aware of its qualities as revealed through the different sensations of sweet taste, peculiar smell, yellow colour, smooth surface, round form, etc.? It is, accordingly, contended by certain writers (generally empiricists) that at the outset we have experience of elementary sensations, which we subsequently group together in the form of percepts or things perceived. (*Vide Chap. IX, § 1 and § 2*)

Reflection reveals, however, that sensations are reached by abstraction,

A little reflection shows, however, that we can never have an experience of a sensation, divorced from an object by which it is caused. We can never experience, for instance, a colour or a taste, a sound or a smell, in the *abstract*. Every experience of ours has a concrete reference, such as the colour *of* an orange, the taste *of* sugar, the sound *of* a bell, or the smell *of* a violet. Sense-experiences are generally presented in clusters, even when apparently a single sense is affected, such as the warmth, softness, smoothness, and extensity of the mother's breast. And, even in

The sense-elements are spontaneously combined in the form of a percept by the constructive power of the mind

The empirical account of sensations as the elements of experience is, therefore, quite fanciful and fictitious.

themselves suggesting unlike surfaces connected with solidity, so, in the case of different sense-elements, they are spontaneously combined in the form of an object by the constructive agency of the mind. We have seen that the mental principle is essentially synthetic in character (*Vide Chap IV, § 5*) Its function is to connect and co-ordinate the sensuous atoms supplied by the different senses. But these elementary constituents of sense-experience can no more be taken as conscious sensations than can the component rays of visual impression be viewed as elementary images. Hence the empirical account of sensations as elementary facts of consciousness which, with the multiplication of experience, build up percepts, images, and other complex psychical phenomena by means of the laws of association, is altogether fictitious and fanciful. There is, nevertheless, great truth in Kant's theory of 'synthetic unity of apperception,' provided it is construed teleologically and realistically. The preception of an object is the primary synthetic exercise of cognition, which betrays, on analysis, the sensuous atoms and the ways in which they are spontaneously combined.

§ 2 Definition of Sensation. The preceding remarks must have revealed the difficulty of defining sensation. Though, however, sensation as such—divorced from perception—is not realized in personal experience, yet we can, by abstraction, conceive what it implies. As, logically, it is an elementary phenomenon, we cannot resolve it into anything simpler; and so it is not possible for us

properly to define it by reference to its genus and differentia. But we may describe it by indicating the way in which it is produced in a normal mind. A sensation may, accordingly, be taken to be an elementary psychial phenomenon resulting from the stimulation of the peripheral extremity of a sensory nerve when the current is carried to the brain. Thus, the experience of colour or sound is taken to be a sensation, as it is the mental effect produced by the action of a definite outward stimulus on a sense-organ. From these remarks it is clear that sensation ordinarily implies three distinct factors, intimately connected with one another, *vis.*, (1) stimulus, (2) organism, and (3) mind. Let us say a few words on each of these.

It may, however, be described.

Sensation involves three factors :

(1) There are external agents, such as ether, air, heat, moisture, which are essential to our life. In order, therefore, that they may be known, they must be able to affect us specifically. (2) Hence we find also the necessity of organs and connected nervous structures adapted to the influence of such agents. Thus, we find the eyes with the optic nerves and centres susceptible to the influence of light, the ears with the auditory nerves and centres susceptible to the influence of sound, and other analogous sense-organs with their connected nerves and nerve-centres capable of being influenced by outward stimuli. (3) The mental effect produced by the action of a stimulus on a sense-organ, such as colour, sound, odour, taste, and hardness or softness. That this mental effect is something different from the nerve-process is

(1) Outward stimuli or objects,

(2) sense-organs,

and (3) the mental effect.

evident from the fact that sometimes the latter may be produced without the former, as in the case of a very faint or transient nervous impression.

The body is
the bridge
that connects
the mind
with the ex-
ternal world.

Sensibility
properly
implies the
mind's sus-
ceptibility to
an impression,
though, by
transfer of
epithet, it
indicates
sometimes the
specific sus-
ceptibility of
an organ to a
definite
stimulus

It is evident, then, that our body is, as it were, a bridge connecting the inner with the outer, the mental with the material world. It is a house we live in, in this sojourn of ours, and we communicate with the external world by means of its windows—the sense-organs. The structure and the materials of this house are apparently adapted to the soil and climate where it is located. Again, as a house has a meaning only by reference to its inmates, so our organism is intelligible by reference to the mental principle connected with it. Thus, what we call *sensibility* is properly the mind's susceptibility to an impression, without which a mere nerve-process is quite unmeaning. By transfer of epithet, however, the term is sometimes extended to cover also the specific susceptibility of a part of our body to a definite stimulus, as when we talk of the acute, dull, or deadened sensibility of an organ or part of an organ. But generally a distinction is drawn between sentience as a nervous property and sensibility as a mode of consciousness. Sensations, as produced by the action of agents or objects lying outside the organism, are called impressions or *sense-impressions*, by which we are to understand mental phenomena and not the *physical* impressions (such as images on the retina) as supposed by some writers (*e.g.*, Bladwin).

We should remember in this connection that

though sensations are generally caused by outward stimuli, yet they are not always so produced. Thus, (a) subjective sensations (say of light) are at times felt simply owing to organic disturbances (such as, changes of circulation in the retina). (b) Organic sensations of hunger, thirst, etc. are also due to vital processes and not to external agents. (c) Muscular sensations likewise are often produced by our own movements and not by outward objects. But, in spite of these exceptions, we find that, in the case of the five special senses (which may be described as the gateways of knowledge), sensations are ordinarily produced by external stimuli.

Sensations
are not always
produced by
outward
stimuli.

It should also be noted that the nervous stimulation must be carried to the brain before a sensation can be produced. If, for example, the sensory fibre connecting a sensitive spot with the brain be severed or injured, no sensation is produced, even though the peripheral extremity of the nerve be stimulated.

The nervous
stimulation
must be
carried to the
brain before a
sensation can
be produced.

Further we should bear in mind that sensation as a physical phenomenon has in it both the affective and the cognitive element. A sensation of warmth, for example, is at once a source of pleasure or pain and a source of knowledge of the temperature-quality of an object. These two aspects, in any case, generally vary inversely in respect of their relative intensities. Thus, if the element of feeling in a sensation be intense, its cognitive value would necessarily be less at the time, and vice versa. If, for example, on any occasion,

Sensation
involves
elements of
both feeling
and knowl-
edge,

which are
ordinarily
combined in
an inverse
ratio.

we enjoy music very much, we do not determine its precise characters then, and if we try to estimate them carefully, we cannot enjoy it well at the time. We shall see in subsequent sections that the relative affective and cognitive values vary in the case of the different senses, some being rather sources of pleasure or pain, while others being rather sources of knowledge. This inverse variation is quite consistent with the general law relating to the simultaneous exercise of the different faculties (*Vide Chap V, § 2*)

The relative affective and cognitive values of the different senses are not the same.

Four principal classes of sensations,

besides the mixed sensations

§ 3 Classification of Sensations. Sensations may broadly be divided into four principal classes, *viz.*, (I) Organic Sensations, (II) Sensations of the Special Senses, (III) Muscular Sensations, and (IV) Sensations of Temperature. Different sensations may blend at times in an indistinguishable mass, as in what we call sticky, oily, or tickling. And sometimes it is doubtful whether a sensation belongs to this or that class, as we find in the case of what we call flavour. But generally we are able to distinguish the four classes mentioned here; and the ground of distinction is to be found in the following facts —

(I) The Organic Sensations indicate the healthy or unhealthy condition of the organism

(I) The *Organic Sensations* are mainly connected with the varying conditions of the internal organs, such as those of digestion, respiration, and circulation. They are consequently of little value to knowledge and serve chiefly to indicate the healthy or unhealthy condition of our body. They have thus been appropriately described at times as the 'barometer of our life processes' (*Vide Chap II, § 6*)

(II) *Sensations of the Special Senses* are excited by means of specially differentiated sense-organs, such as the eyes, the ears, the skin, the nose, the tongue, and the palate. A sense-organ may thus be defined as a structure forming the peripheral termination (end-organ) of a sensory nerve (or group of nerves), specially adapted to react on a particular kind of stimulus, together with the connecting nerve, by which the effect of the stimulation is transmitted to the centres, and the centres immediately concerned in the production of the sensation. This definition indicates that ordinarily a sense-organ (*e.g.*, the eyes) can be acted on only by one kind of stimulus (*e.g.*, light); but under exceptional circumstances an organ may be roused to activity by different stimuli (*e.g.*, sensation of light produced by mechanical pressure or electric current). The five special senses, when arranged in order of refinement or intellectual rank, are sight, hearing, touch, smell, and taste—the last two of these being the least refined or discriminative. The sense-organs have often been described as 'the gateways of knowledge'. Watson very well writes—

"From birth we have His captives been :
 For freedom, vain to strive !
 This is our chamber · windows five
 Look forth on His demesne ;
 And each to its own several hue
 Translates the outward scene.
 We cannot once the landscape view
 Save with the painted panes between".

Sense-organ defined.

The sense-organs have been regarded as 'the gateways of knowledge'.

Muscular sensations ordinarily accompany the consciousness of activity and other sense-experiences

They are distinct from tactual sensations

Sensations of Temperature are also distinct from those of Touch

The principle of the classification of the senses compared with that of the mental faculties

In classifying faculties we proceed from known differences among mental states to the supposition of distinct faculties,

III. *Muscular Sensations* are due to the contraction and relaxation of muscles by means of which the movements of the body are performed. These, therefore, generally accompany the consciousness of activity as well as the experiences of the other senses which are moved with the help of the muscles. They are distinct from sensations of touch due to simple contact.

IV. *Sensations of Temperature* also constitute a distinct class. There are, as we shall see in § 8, temperature-spots in the skin which are affected by heat and cold, and these spots are not identical with pressure-spots involved in sensations of touch.

We shall consider these different classes of sensations in distinct sections. But, before doing so, let us say a word with regard to the principle of this classification as compared with the principle of the classification of mental faculties explained in Chapter V, § 1. In classifying mental operations we start with the facts of consciousness. The mental faculties or operations are not at the outset observed as distinct—lying, as it were, in different chambers of the mind. In the beginning we notice the facts of our conscious life, and, on examining them, we find that they are not all alike. We, therefore, classify these facts of consciousness according to their points of similarity and difference, we find that there are three classes, namely, (1) the facts characterized by the preponderance of assimilation, discrimination, and grouping, (2) those characterized by pleasure and

pain ; and (3) those characterized by tendency to action for some conscious end in view. To account for these three distinct groups of the facts of consciousness, we postulate the existence of three mental powers, namely, Intellect, Feeling, and Will. Our classification of mental powers or operations is thus a hypothesis to explain the conscious differences of mental phenomena

In classifying the sensations, our procedure is just the reverse. We have here the different sense-organs, which are given from our birth as locally and numerically distinct. And it is on the basis of this distinction among sense-organs that we distinguish between sensations or classify them. It is to be seen that the principle of one classification is quite different from that of the other. In the case of the classification of mental operations the differences among the states of consciousness constitute the data, while the mental faculties or powers form the *quæsita*. In classifying the sensations the differences of organs (corresponding to the faculties in the other classification) are the data, while the classification of sensations (corresponding to states of consciousness in the other classification) is a matter of inference. Thus, what is given in the one is found in the other.

while in classifying sensations we proceed from the existing difference among sense-organs to the distinctness of the impressions produced through them.
The two principles are thus quite distinct

§ 4. General Characters of Sensations
All the sensations are, more or less, calculated to give us a knowledge of the qualities of things, which indicate their values to us. We have seen that the organic sense is, in this respect, inferior to the other senses. And, of all the sensations, those of the

The sensations generally give us a knowledge of the qualities of things,

five special senses are chiefly important in this respect. It is due to the special organization of these senses. As each sense has its own specially modified structure or 'sense-organ' (as the eye, the ear, etc.) fitted to be acted upon by a particular kind of stimulus (as ether-vibrations, air-waves, etc'), these sensations are marked off one from another by great definiteness of character, and hence are more susceptible of being discriminated and recognised than the organic sensations. As ordinarily brought about by the action of *external* agents or objects lying outside the organism, they are fitted to yield us a knowledge of the environment.* The development of intelligence is thus chiefly connected with the special sensations. And the instances of blind and deaf mutes† show to what extent mental development is retarded or dwarfed by defects in these respects. The sum total of our knowledge of things is limited by the number of distinguishable characters among our sensations. The general well-defined charac-

which is
comparatively
definite in the
case of the
special senses

The sum total
of our
knowledge of
things is
limited by the
distinguish-

*In order that a sensation may give us a knowledge of an external thing, the sensation must not vary, that is, the same stimulus must always bring about the same kind and degree of sensation. This condition is, however, not always fulfilled. (1) Our sense organs are liable to changes of condition which modify the effect of a stimulus in any case (e.g., taste may be temporarily affected and disguised by the persistence of a preceding sensation of taste) (2) A nerve-structure may be temporarily fatigued by the action of a prior stimulus and so rendered less sensitive to a second stimulus of the same kind [e.g., after intense heat moderate heat is not felt to be heat at all] (3) A sense-organ may be more permanently modified (e.g., smell and taste by a cold and other causes). These disturbances are more distinct and prominent in the lower senses than in the higher. The sensations of taste, smell, and temperature are pre-eminently the variable sensations.

† The student may consult the lives of Laura Bridgman and Helen Keller in this connection (*Vide* 5 Chap XVIII, § 5)

ters of these sensations, whereby they are fitted to be signs or indications of qualities in external objects and of changes which take place in them, are —

I. Intensity or Degree, by which is meant a difference of strength—as that between a bright and a faint light, or a loud and a soft sound. All classes of sensations exhibit such differences of degree, though the special sensations exhibit them in greater variety than other sensations. These differences of degree are a clue to the nature or structure of bodies, the force exerted by them, their distance from us, and so on, and as such are of great importance to knowledge.

2. Quality or Kind, by which is meant a difference of nature—as that between sound and colour, sour and sweet. The sensations of one sense (say, sight) are marked off from those of another (say, hearing) by a broad difference of generic quality. Within each sense, again, there are finer differences of specific quality (as those answering to different colours or sounds of different pitch and timbre). These differences of quality, like those of degree, serve as a clue to the properties of external objects (e.g., material objects and musical instruments are distinguished partly at least by their colour and timbre). We should not, however, mistake a difference of degree (as that between heavy and light or two shades of the same colour), for a difference of quality. The difference of quality is much sharper or more definite in the case of some sensations than in that of others.

able
characters
among
sensations.
The general
characters of
sensations are

(1) Intensity.

(2) Quality,

generic or
specific

(generic differences being due to different kinds of stimuli, while specific differences, to their modifications,

Generic differences of quality are connected with the mode of stimulation (by air-waves, ether-waves, and so on), while specific differences, with differences in the form of stimulation (air or ether vibrations of different rapidities). While it is fairly certain that our several sensations of pitch and colour are due to a large number of distinct nerve-elements of hearing and sight, it is not yet clear whether to every class of simple sensations there answers a special nerve-structure or whether simple sensations of different qualities may be brought about by unlike modes of reaction of the same nervous elements.

(3) Duration,

3. *Duration*. All sensations, as indeed all mental states, endure for a shorter or longer period. Yet all classes of sensation do not present this aspect with equal clearness (*e.g.*, the duration of tastes and smells, which are less sharply defined in respect of their commencement and termination than others, is less distinct or definite than that of other sensations, as those of sound). The duration of a sensation is related in general to that of the process of nervous stimulation involved. The effect of a stimulus may persist in the form of after-sensation for an appreciable period after the stimulus has been withdrawn. The sensations of taste and smell exhibit this feature in a marked degree, which accounts for the want of definiteness in the cessation of these sensations. In the higher region of optical impressions we have these effects as occasional phenomena in what are known as positive after-images (*Vide Chap X, § 3*).

4. Local Character. By this is meant a difference between two sensations, perfectly similar in degree and kind, which are produced through two different points of a sensitive surface. Thus, when different parts of the skin or retina are stimulated, we have similar but distinct sensations. It should be distinguished from local interpretation or localization of sensation, which is the result of personal experience and acquisition. Localization presupposes local character or the original difference of quality or colouring (the exact nature of which we are now quite unable to recall or imagine), due to the activity of distinct nerve-fibres. Local character or discrimination shows itself in either of two forms : (a) *plurality of points*, when we have two distinct sensations answering to two discrete points of a surface (*e.g.*, when two tangible or visible points lie at a certain distance from one another, a shorter distance not producing a double sensation), (b) *massiveness or extensive magnitude of sensation*, manifested when, instead of two discrete points, a continuous system of points on a surface is applied to the skin (*e.g.*, when we recognise a difference in the sensations produced by the contact of a pie and a pice placed on adjacent parts of the hand). The existence of a sensitive surface, supplied by a system of similar yet distinct and isolated nerve-fibres, which may be acted on apart from one another by locally circumscribed stimuli, is the condition of local character and is found only in Touch and Sight.

We may mention here a marked difference

(4) Local Character,

which appears either
(a) in the form of plurality of points

or (b) in the form of massiveness of sensations,

(Difference between

intensive and extensive quantity, and measurement of their differences.)

noticeable between intensive and extensive quantity. In the case of extensive quantities we can easily measure their differences (*e.g.*, the difference between a foot and eleven inches, the surface of a rupee and the surface of a pice), but in the case of intensive quantities, it is not possible for us to measure their differences, though these are felt as subjective effects. It has been maintained by some psychologists that, while the difference between two extensive quantities is itself an extensive quantity, the difference between two intensive quantities is something quite unlike them (*Vide Mind, N.S., VI, p 334.*) It is said, for example, that "the difference between the loudness of two sounds is not itself a sound having a certain assignable loudness" (*Stout, Manual, p 30*) Such a view, however, is scarcely tenable. The fact is, that in the case of intensive difference our estimate is only subjective, owing to the absence of an objective standard, while in the case of extensive difference, we do employ such a standard and thus measure the difference. If, however, in the latter case, we try to measure the subjective effect alone, without any reference to its exciting cause, the estimate would be as much indefinite as in the former case. we can scarcely say that the *sensation* produced by a foot is in extensity twelve times the *sensation* produced by an inch.

and (5)
Hedonic
Tone.

5 *Hedonic Tone.* It implies the pleasurable or painful experience which accompanies the sensations. In its simple form, it is the chief factor in

organic sensations and is found also more prominently in Taste and Smell than in the other senses.

We should remember in this connection that 'Duration' and 'Local Character' are not so distinctly present in all classes of sensations as are 'Degree', 'Quality', and 'Hedonic Tone'. Local character is found only in Touch and Sight; hence in part the explanation of the fact that these senses are pre-eminently fitted to give us a direct knowledge of space, in its several aspects of number and position of points, and of magnitude and figure of objects

We should also bear in mind that a sensation, to be clear or distinct (in respect of degree, quality, duration, or local character), must involve an exercise of the brain-centres and the co-operation of the mind in the form of attention. By the direction of attention, a sensation is discriminated or distinguished from others accompanying or immediately preceding it, and assimilated or identified with past like sensations, traces of which persist, or have been left behind, in the mind

§ 5 (I) Organic or Systemic Sense. It is common to all sensitive parts of the organism, and involves no special nervous structure at the peripheral extremity. It is connected with (1) the bones, tendons, *etc.*, (2) the nervous system, (3) respiration, (4) digestion, (5) circulation, (6) nutrition, (7) the general state of organs, as heat *etc.* The organic sensations are vague and ill-defined, and so marked by absence of definite characters. Their distinguishing peculiarity is that they have

Local character is found in Touch and Sight alone, which thus contribute to our knowledge of space

A sensation, to be clear and distinct, must involve an exercise of attention with the connected intellectual processes

I *Organic Sense.*

It is common to all sensitive parts and does not require a special peripheral structure.

The organic sensations are

vague and ill-defined and are characterized by a marked hedonic tone, due to organic conditions

a marked pleasurable or painful aspect or complexion, due not to the action of external objects but to a certain condition of the part of the organism concerned (*e.g.*, feelings of comfort and discomfort connected with digestion and indigestion, injuries to the tissues, *etc.*) Though at times they indicate conditions of the external world (such as stuffy air, oppressive heat), yet ordinarily they give us but little knowledge of it They rather give us a knowledge of the condition of our organism. They constitute the back-ground of our emotional life—colouring our moods and determining our temperaments generally, such as we find in the irritable and gloomy dispositions of the bilious and the dyspeptic They often indicate organic wants, as of food, drink, air, sleep, or exercise (*Vide Chap XIV, § 5.*)

II The Special Senses
The five special senses may be arranged in an ascending order in point of intellectual rank thus Taste, Smell, Touch, Hearing, and Sight
(1) Taste and (2) Smell

They are ordinarily rather sources of enjoyment than of know

§ 6 (II) The Special Senses The five special senses may be arranged in point of the degree of their refinement in the following ascending order —Taste, Smell, Touch, Hearing, and Sight For an account of the physiological conditions of the sensations of these senses see Chapter II, § 5. Let us briefly consider their characters in order.

(1) Taste and (2) Smell The very position of these organs at the entrance of the digestive and respiratory cavities suggests that their function is the determination of what is wholesome or unwholesome to the organism as a whole, they are thus marked by the predominance of feeling. They have, accordingly, been called “the servants of the body”. They are of little importance as

knowledge-giving senses, for—(1) they are very little discriminative, so that their sensations (like the organic ones) are vague and ill-defined in point of degree, quality, duration, and local character alike; and (2) they are liable to great fluctuations, temporary and permanent. Only after special exercises (as in the case of the chemist, the wine-taster, etc) they may grow in refinement in particular directions and thus supply a quantity of exact knowledge about the properties of objects. It may be mentioned here that what is called *savour* is rather the combined effect of taste and smell, usually associated with what is agreeable to the palate.

(3) Touch By the sense of touch is meant the sensations we receive through the stimulation of certain nerves terminating in the skin by bodies in contact with it. These are either sensations of mere contact or pressure, or those of temperature. They supply important elements of feeling (as in contact with smooth surfaces and warm bodies). The chief value of touch lies, however, in its intellectual importance. In its highest form, as it presents itself at definite portions of the bodily surface (such as the hands, the finger-tips, the lips, and the tip of the tongue), the tactile sensibility becomes a most important means of ascertaining the properties of bodies. (a) The discrimination of *degrees* of pressure by touch varies considerably at different regions of the bodily surface (*e.g.*, it is finer when the same part, say one hand, is stimulated than when two different parts, as two hands, are exer-

(3) *Touch.*

Though it also is a source of enjoyment, yet its contribution to knowledge is more important.

(a) The discrimination of degrees of pressure varies in different parts.

cised, it is finer on the anterior than on the posterior surface of the fingers) It assists in giving us a knowledge of the weight of bodies and the force exerted by them (as when we distinguish between a heavy and a light body pressing against us)

- (b) Qualitative differences of smoothness and roughness, of hardness and softness are known through touch
- (c) Duration of impressions is also detected by it
- (d) Local discrimination is finer in the mobile parts and on the anterior surfaces than in the comparatively fixed parts and on the posterior surfaces

Local character materially contributes to the knowledge of extension.

(b) Important tactal differences of *quality* are those of smoothness and roughness (the combined result of local character and discrimination of pressure) and hardness and softness (c) Tactal impressions having some persistence may be finely distinguished in respect of their *duration*. This is greatly promoted by the mobility of the main tactal organ—the hand (d) *Local discrimination* is finer in the mobile parts of the body (hands, feet, lips, etc) than in the comparatively fixed parts (the trunk), which is taken by some to imply that it has been developed through successive generations by the help of movement. It is finer also on the anterior than on the posterior surface of the hand, and decreases rapidly as we recede from the finger tips towards the wrist and the elbow. The local separation of touch-sensations allows of a nice discrimination of *simultaneous* impressions. It materially contributes to the tactal knowledge of extension, and its various modifications, such as figure, size, etc. Weber has tested the local discrimination of different parts of the bodily surface by means of the extremities of a pair of compasses. The smallest distance between these, needed to produce two distinct sensations, determines the degree of local sensibility of any part. The distance between the two compass-points at which they cease to be dis-

tinguished as two, measured in a variety of directions, determines what is known as a '*circle of sensation*.' The bodily surface is made up of myriads of such small circles of different sizes and forms, overlapping one another in an intricate way.

Circle of
sensation

(4) Hearing. It ranks high both as a source of pleasure and as an intellectual or knowledge-giving sense. (1) It can detect fine differences of intensity or *degree* among sensations of sound. (2) Its high intellectual character, however, shows itself very conspicuously in the *qualitative* differences of musical and non-musical sounds or noises. Musical sounds depend on regularly recurring or periodic vibrations of the air; while non-musical, on irregularly recurring or non-periodic vibrations. (2) In *musical* sounds we have (a) a scale of pitch-quality resembling closely the scale of intensity. If we pass upwards from a low note to a higher one, through all distinguishable gradations, we experience a continuous variation of sensation in one respect, *viz.*, *pitch* or *height*. This scale or series of similar or analogous changes (increase or decrease of pitch) is described as a '*continuum*' of one dimension. All these differences of pitch answer to changes in the rate of vibration of the medium (the atmosphere). The higher the note, the more rapid the vibrations According to Helmholtz and others these differences of pitch-sensation involve the reaction of distinct nerve-elements or fibres of Corti. In addition to this scale of pitch-quality (b) there are the differences known as '*timbre*' or '*musical quality*' due to the various composi-

(2) In musical
sounds there
are differences
of (a) pitch-
quality

and
(b) timbre.

tion of the several kinds of tone, as in sounds produced by different instruments, the flute, the harp, the human voice. Musical tones or clangs are generally compounded of fundamental and subordinate upper tones, the number and strength of these last determine the timbre of the note. (ii) The ear also distinguishes a vast number of *non-musical* sounds, the characteristic 'noises' of different substances, e.g., the roar of the sea, the rustling of leaves, the crack of a whip, etc. This side of hearing is of great value for the knowledge of external things. (3) The ear has a fine discrimination of *duration*, which together with delicate and far-reaching discrimination of degree and quality enables it to acquire a good deal of exact information by way of language and to gain a considerable amount of refined pleasure from music. (4) As a set-off against these advantages we see that hearing has very little *local discrimination*. Hence, hearing gives us (directly) very little knowledge of the position of bodies in space, and of their figure and size. The fact, that we have two ears, constitutes a quasi-local difference, because sounds according to their position affect the two ears unequally. But it is doubtful how far (apart from movement of the head) the ear alone can distinguish degrees of extensive magnitude—say, between a *massive* or voluminous sound (such as the roar of a wide expanse of water or the sound of a great chorus of voices) and an *acute* or non-voluminous sound (such as the sound of a falling streamlet or of a single voice).

(5) Sight It is by common consent allowed

(12) In non musical sounds there are the differences among the characteristic noises of different substances

The fine discrimination of duration is of much use in understanding speech and enjoying music.

Hearing is deficient in local character.

the first place in the scale of refinement. The delicate and intricate structure of the organ, and the nature of the stimulus (ether-vibrations), give to its impressions a special degree of definiteness. The eye surpasses all other sense-organs both in the range and in the delicacy of its impressions. These are at once the source of pure and refined enjoyment and of valuable knowledge. (1) The eye is highly discriminative of *degree* the scale of intensity in sight answers to all distinguishable degrees of luminosity, and this is of the greatest importance in visual discrimination of objects. It should be remembered, however, that the intensity of a light sensation does not depend simply on the degree of objective luminosity, but also on the condition of the organ. The eye accommodates itself to the varying degree of illumination, as direct sunlight, lamp-light, etc., so that an object appears half as bright in the evening as in the morning. The discrimination of degree is finest on the yellow-spot and less on the side parts of the retina. It is much less fine when, instead of white, coloured light is employed. (2) In sight, again, we have numerous and fine differences of *quality* (2) The most important is the spectrum scale or series of colour-differences (violet, indigo, blue, green, yellow, orange, and red, together with certain finer distinctions, as indigo blue, greenish blue), due to changes in the rapidity of the vibrations constituting the stimulus. This series of colour-sensations differs, however, from that of tone or pitch-sensations. (a) The quality of the

It is the most refined sense

and is of wide range.

It is a source of refined pleasure and of valuable knowledge

It detects fine differences of (1) degree

and (2) quality

(2) The spectrum scale.

Differences between colour-sensations and pitch-sensations.

former does not change continuously in close correspondence with the changes of the stimulus, as in the case of the latter. Hence we cannot speak of a colour-scale in the same sense as we speak of a tone-scale (6) Moreover, the series of colour-impressions, instead of falling into a straight line, rather assumes the form of a bent or curved line Thus, the extremities, red and violet, seem to approach one another, as is proved by the intermediate sensation of purple, which is due to their combined rays The colour-impressions, while an important element of artistic pleasure, are of great intellectual importance as a means of recognising things According to *Young-Helmholtz theory* the nervous elements of the retina consist of three kinds of fibre, susceptible to red, green, blue or violet rays respectively, other colours being regarded as composite. According to the *theory of E Hering*, there are three kinds of nerve-element, each capable of two antagonistic modes of activity corresponding to blue and yellow, red and green, and white and black (ii) There is also a scale of purity or saturation for any given colour, due to the varying proportion of white light to a special kind of light Differences in the degree of saturation must be carefully distinguished from differences in the brightness or degree of brilliance of a colour, which depends on the quantity, and not the quality, of the light The impression of white is produced by combining either the several kinds of rays together, as in sunlight, or different pairs of them (called complementary pairs) in

Theories of
retinal
activity

(ii) The scale
of purity or
saturation.

certain proportions. (3) Sight discriminates *duration* of events and things ; but (4) it is characterized by very fine local differences. By means of the distinct nerve-fibres which terminate in mosaic-like arrangement in the retina, we can distinguish two points of light, say two stars, when they lie very near each other. This discrimination of points is finest on the yellow spot, falling off on the side portions of the retina. Local discrimination contributes materially (as we have seen in Touch) to our perception of extension and space, including the form and magnitude of objects.

Fine local discrimination contributes to our knowledge of space.

§ 7. (III) Muscular Sense Though the muscular sensations are usually experienced with the tactful, yet their distinctness is evident. We find, for example, muscular sensations continuing even when the tactful sensibility is impaired or destroyed by anæsthetics. Thus, a singer still controls his vocal chords, though their sensitiveness is destroyed by the application of cocaine. Muscular sensations, then, are those characteristic experiences which result from the contraction and relaxation of the voluntary muscles, such as those of the hands, legs, eyes, or vocal organs. The characteristics or peculiarities of muscular sense are—(1) that it is active as distinguished from the passive experiences of the other senses, (2) that unlike the special senses it is ordinarily stimulated from within and not from without. Motor energy proceeding from the motor centres along efferent nerves leads to the contraction and relaxation of muscles, giving rise to muscular sensations.

III. *Muscular Sense* Muscular sensations, though experienced with the tactful, are not identical with them

they are the characteristic experiences resulting from the contraction and relaxation of voluntary muscles

Characteristics of muscular sense
(1) It is an active experience ;
(2) it is ordinarily stimulated from within ,

and (3) it is usually exercised in combination with the other senses.

It involves an exercise of both the motor and sensory centres.

The calibre of the muscle exercised determines the character of the resulting sensation

Muscular sensations vary also according to (1) the direction and (2) the range of movement.
Varieties of muscular exercise and connected sensations

(1) Sensations due to position,
(2) sensations accompanying

(3) The muscular sense is not sharply distinguished from the other senses by having an isolated organ not connected with them. Muscular sense is usually found to be blended with the other senses, as in active touch, active sight, etc. It should be noted that muscular sensations are made up partly of a central factor due to innervation and partly of a peripheral factor due to the contraction of the tendons and muscles. Thus, both the motor and sensory factors seem to be involved in muscular sense.

Muscular sensations, like other sensations, vary in respect of intensity, quality, duration, and local character or range. The degree of muscular exercise determines, no doubt, the intensity of the resulting sensation. The calibre of a muscle determines also the character of the consequent sensation. The muscular sensation accompanying the movement of a hand is evidently not the same as what accompanies the movement of a finger. Muscular sensations, moreover, vary according to (1) the direction and (2) the range of movement.

There are three principal forms of muscular exercise and the connected sensations (1) Muscular sensations *due to position* these are determined by the amount of expenditure of energy and the sensations accompanying the contraction of the muscles and the skin, connected with a definite position of a limb (2) Sensations accompanying *unimpeded movement* these are made up of a series of muscular sensations accompanying the varying positions of the limb moved. If the

range or direction of a movement varies, the resulting muscular sensations vary with it. (3) Sensations of *impeded* or *resisted movement*: these are due to muscular sensations accompanying movement followed by pressure arising from contact. The intensity of pressure increases with the degree of resistance, or moving energy thwarted. It is this last form of muscular exercise which familiarizes us with the force-properties of material objects. The idea of space or externality, though understood to a certain extent with the help of unimpeded movement, is rendered specially clear by reference to the third form of muscular exercise : space now acquires its significance as a property of material objects.

It may be mentioned here that active consciousness is associated, not merely with the exercise of the muscles, but also with that of the tendons and ligaments which bind a bone or a muscle to another. Thus, a child is aware of the position or movement of a limb merely by means of the sensations accompanying innervation or exertion, without any reference to sight. The sensations due to such activity are known as *kinæsthetic sensations*, which materially help us in determining the direction, velocity, and duration of a movement or the position of a limb at any time. The *kinæsthetic senses*, accordingly, are the organs in the motor apparatus of the body, which are set in function by bodily movements

§ 8. (IV.) Thermal Sense. The Sense of Temperature, though usually included in Touch, is

unobstructed movement ; and (3) sensations arising from resisted movement.

The last form gives us a knowledge of the force-properties of objects and improves the idea of space derived from the second form.

Kinæsthetic sensations are due to the exercise of the motor apparatus of the body, such as tendons, ligaments, and muscles

Though the skin is the seat of the Temperature-Sense, yet there are special nerves and end-organs for the experience of heat and cold. The temperature-spots do not exactly correspond to pressure-spots.

really a distinct sense. The skin is, no doubt, the seat of the temperature sense; and ordinarily thermal sensations are experienced in close connection with touch. But the experiments of Goldscheider tend to show that there are special nerves and end-organs for the sensations of heat and cold. The distinctness of this sense is proved by the fact that temperature-spots do not correspond exactly to pressure-spots. Professor Ladd writes, "Certain minute areas, and these only, are susceptible to irritations of a kind to result in sensations of heat and cold. Such spots are insensible to pain and probably also to pressure. Moreover, some of these minute areas are sensitive to cold only ("cold-spots"), others of them to heat only ("heat-spots"). When the topography of the skin is carefully mapped out, these two kinds of temperature-spots appear not to be superimposed. They are not located alike on the symmetrical parts of the two sides of the same individual, nor on the corresponding parts of different individuals. In general, they occur in lines that radiate from centres coincident with the roots of the hair. These lines often cross each other and form figures of various shapes. Heat-spots are, on the whole, less numerous than cold-spots, but in parts of the body where the skin is most sensitive to either temperature, the corresponding kind of spots is most numerous. "Temperature-spots" have been divided into first class and second class according to the degree of strength with which they react on moderate stimulation. Some of them are irrita-

ted only by excessive temperatures. The same may seem ice-cold to one spot and only cool to another" (*Outlines of Physiological Psychology*, pp. 239-240)

It may be mentioned here that the thermal sense is often a source of knowledge regarding objects (e.g., metal, wood, fire, ice). But this knowledge is generally less valuable than that of form or weight, partly because sensations of temperature are highly variable, depending on the varying temperature of the organs, and partly because the temperature of bodies is a fluctuating state, not so fixed or invariable as weight or form.

Thermal Sense is not very important from the stand-point of knowledge owing to the highly variable character of the sensations of heat and cold.

§ 9 Passive and Active Sense. When any sense-organ is stimulated but not moved, we have the experiences of a Passive Sense; when, however, the exercise of a sense involves also an exercise of the connected muscles, we get an Active Sense. For example, if a visual impression is produced by an object stimulating the retina, the eye-ball being at rest, passive vision is illustrated. If, on the other hand, we move our eyes and fix them on an object in order to have a visual experience, active sight is illustrated. So in the case of touch, and to a certain extent, in the case of the other senses (e.g., in sniffing, listening, and active relishing).

Passive Sense implies sensibility without muscular exercise, while Active Sense indicates sensibility connected with such exercise.

The superiority of an active to a passive sense consists in the following factors:—(1) The range and number of passive sensations are increased to a very great extent by movement. The field of view and the variety of visual impressions, for

The superiority of active to passive sense lies in its furnishing us with (1) an

increased range and number of sensations,

(a) a greater vividness and distinctness of impressions, due to change,

and (3) the muscular sensations, which contribute to our knowledge of the force and space properties of bodies

example, are much greater when the eyes are moved than when they are at rest, and the same thing is illustrated in the case of touch when we move about or move our hands, instead of being at rest. (2) Greater vividness and distinctness of sensations are secured by change of impressions and the exercise of the most discriminative parts of an organ with regard to them. The hand and the eye, for instance, supplied with delicate and complex muscular apparatus, can by their mobility multiply impressions through their most sensitive parts—the tips of fingers and the yellow spots. This mobility greatly facilitates fine discrimination of impressions in rapid succession. (3) The muscular experience itself is a valuable means of determining important qualities of outward objects. The muscular sensations which accompany the movements of the eyes and the ears enable them to ascertain definitely the space-properties of objects, such as form, size, position, and distance. The local discrimination of the skin and the retina acquires its importance because of its intimate association with muscular discrimination (*Vide* § 10).

§ 10 Psycho-physical Results connected with Sensation The quantitative relation between outward stimuli and mental impressions has of late been a matter of laboratory investigation in America, Germany, England, and France. A correspondence is noticed between the degree, duration, extent, or form of a stimulus and the resulting sensation. Thus, a faint, momentary, or minute stimulus may fail altogether to give rise to a

sensation. The investigation is conducted with great care and interest, especially to measure intensive correspondence between stimuli and sensations.

The degree of a sensation varies with the force of its stimulus. Thus, the sensation of a bright light or loud sound answers to a great intensity or height of the waves (ether or air waves) constituting the stimulus ; while the impression of a faint light or soft sound answers to a feeble intensity or low altitude of the undulations concerned. A science of recent growth called *Psycho-physics* or Experimental Psychology (of which the chief representatives are Weber, Fechner, Wundt, and Helmholtz) investigates the relation between the psychical and the physical, by the study of the mathematical relation between the degree of sensation and the force of the stimulus. "Throughout the whole of the *Psycho-physics* it is taken for granted that the bodily and psychical processes stand to each other in a functional relation. The psychical processes are indirectly conditioned by influences exercised upon the body, and immediately by such as are exercised within the body ; and these latter processes are the peculiarly psycho-physical processes." (*Erdmann*) The *External Psycho-physics* studies the relation of physical stimulus to the psychical effect or sensation. The *Internal Psycho-physics* treats of psycho-physical processes in the proper sense of the term, *i.e.*, the nervous processes in relation to psychical. Some of the most important results of psycho-physics are :—

The Threshold or Liminal Intensity of a sensa-

Psycho-physics or Experimental Psychology investigates the exact quantitative relations between outward stimuli and their mental effects (sensations)

Distinction between External and Internal Psycho-physics

Results of Psycho-physics.

Threshold of sensation

tion is its minimum intensity of which we are just conscious, or it may be defined as "the point at which we begin to notice a stimulus or a difference in stimulus", it is determined by the lowest intensity of a stimulus necessary to the production of an appreciable sensation

Absolute
sensibility of
an organ or
part of an
organ

The *Absolute Sensibility* of an organ or part of an organ is the degree of delicacy of its susceptibility to impression, it is determined by the liminal intensity of sensation resulting from the stimulation of the organ. Thus, if a slighter mechanical pressure produces a sensation in one part of the skin *A* than in another part *B*, we say that *A* has greater absolute sensibility than *B*.

Above the threshold an increase of the stimulus does not always cause an increase in the intensity of the sensation. The increment required to produce an appreciable difference in the sensation depends on the absolute intensity of the stimulus. The greater the intensity of the stimulus at work, the greater must be the increase of stimulus in order that a perceptible difference in the resulting sensation may arise. Thus if *s* and $5s$ represent two stimuli of unequal intensity and *z* a small increment, the sensations produced by *s* and $s+z$ would be felt to differ, but the sensations produced by $5s$ and $5s+z$ might remain indistinguishable. It is found that the required increment is in every case directly proportionate to the intensity of the stimulus. Thus, whatever the value of *s*, in order to produce an increase in the intensity of the sensation, *s* must be increased

by ks , where k stands for some constant fraction, as $\frac{1}{10}$. These results lead to *Weber's or Fechner's Law** In order that the intensity of a sensation may increase in arithmetical progression, the stimulus must increase in geometrical progression ; or, the sensation increases as the logarithm of the excitation Observation supports this law only with respect to stimuli of medium strength. As we approach the threshold or the height, considerable deviations from it occur.

Weber's or
Fechner's
Law.

As a result of experiments made in connection with exercise and fatigue, a law is laid down by Fechner as a parallel one to that explained above : when the susceptibility for two stimuli changes in a constant ratio, the sensation of their difference remains the same.

A parallel
law

The *Discriminative Sensibility* of an organ or part of an organ is its degree of delicacy to detect a difference in the intensities of sensations resulting from its stimulation ; it is determined by the magnitude of the fraction representing the increment of stimulus necessary to produce an increase of sensation The smaller the fraction, the greater the discriminative sensibility Thus, the discriminative sensibility of the finger-tip to pressure is about twice that of the shoulder-blade, the fractions being about $\frac{1}{6}$ and $\frac{1}{3}$.

Discrimina-
tive sensibility
of an organ
or part of an
organ.

The Height of Sensibility of a sense is the limit of its susceptibility to the maximum intensity of

Height of
sensibility of
a sense.

* The law was enunciated by Fechner, but, out of modesty, he attributed it to Weber, whose investigations led to its formulation Hence the law is sometimes known also as Weber's Law. (*Vide* § 11.)

sensation resulting from its stimulation. When the stimulus is increased up to a certain point, any further increase produces no perceptible increase in the sensation. This point determines the height of sensibility. The higher this point in the scale, the greater, according to Wundt, the receptivity of the organ.

Range of sensibility of a sense

The Range of Sensibility of a sense is the latitude or extent of its susceptibility from the threshold to the height. The lower the former or minimum limit, and the higher the latter or maximum, the greater the range of sensibility. The relative range is determined or measured by a fraction of which the numerator is the height, and the denominator the threshold.

These different aspects of sensibility do not vary together, but the discriminative sensibility is the most important for intellectual purposes

It is to be borne in mind that the aspects of sensibility to stimulus explained above do not vary together. Discriminative sensibility is found by observation to be an independent aspect of sensibility, and by far the most important for intellectual purposes (knowledge of things) "Weber's law, the parallel law, and the law of threshold will hold good", says Fechner, "in a much more unconditional way when we come to discuss the relation between psycho-physical excitation and sensation, than in connection with the relation between stimulus and psychical process" The fact of the threshold is, in particular, of very great importance for the theory of unconscious ideas, sleep, attention, etc.

There are
several
cases of
doubt as to

It is a matter of uncertainty what number of ultimate differences of quality among our

sensations it is necessary to assume. Modern research goes to show that subjective analysis is not always adequate to the breaking up of a complex mental state into its parts, which fuse or coalesce into an inseparable mass, so that sensations which are unanalysable by introspection may have to be regarded as complex. (1) Helmholtz regards seemingly simple sensations of timbre or colour as really composite, being compounded of more simple or elementary parts or sensations (partial tones, *etc.*) (2) H. Spencer and M Taine seek to carry the 'objective analysis' of sensations still further, resolving all differences of quality among our sensations into differences in the mode of combination of the same ultimate psychical elements or "units of consciousness", namely sensuous atoms or 'nervous shocks'. Though these remarks be true, yet, for ordinary psychological purposes, we may assume sensations which appear to be quite simple in quality—such as those of the perfectly distinct colours, blue, red, *etc.*—as our units.

§ 11. Relativity in Sensations. The Law of Relativity is well illustrated in the department of sensations. Everyday experience testifies to the fact that a sensation at any moment is relative to the condition of the organ at the time as well as to the prior experience. If, for example, we try to see a star in broad daylight, we fail in our effort because the glare of the sun renders invisible the faint light of a twinkling star. In the evening or at night a star, however, is clearly

the number of ultimate differences of quality among sensations

For ordinary purposes, however, simple or elementary sensations may be taken as units

A sensation on any occasion is relative to the condition of the organ concerned and also to prior experience

seen, since its glitter is made prominent by the surrounding darkness. The accommodation of the eyes also varies in these two cases owing to the presence of bright light in the one case and its absence in the other. Again, if we dip our finger in water of the same temperature as that of our organism, we have neither an experience of cold nor of heat. If, however, the temperature of water be greater or less than that of our body, then we have a sensation of heat or of cold. Similarly, if we dip a greater portion of our finger into hot water, the sensation of heat is intensified ; here the increased intensity is not due to an increased intensity in the temperature of the water ; it is the cumulative effect of a wider surface being simultaneously stimulated. The musical effect of harmony, likewise, is due essentially to relativity. When sounds are related to one another in a certain ratio (as illustrated in the gamut), a musical effect is produced, otherwise there is an experience of dissonance.

Relativity is
illustrated
also in the
case of dis-
criminative
sensibility
Weber's Law.

Relativity in sensations is also illustrated in the case of discriminative sensibility. Weber, by a series of experiments, has shown that "the increase of a stimulus necessary to produce an increase of the sensation, bears a constant ratio to the total stimulus." As we have seen, the greater the intensity of the stimulus at work, the greater must be its increase so that it may produce an appreciable mental effect. Thus, the increment is always relative to the quantity of the stimulus at work when it produces a difference in the mental effect.

According to Weber, if the intensity of the stimulus be s , it must increase by ks to produce a difference in the mental effect, where k stands for a constant quantity. If the value of s be 100 and k stands for the fraction $\frac{1}{100}$, then the difference between 100 and 101 (*i.e.*, $100 + \frac{1}{100}$ of 100) will be felt. If again the value of s be 10,000 then, to produce a mental effect the difference between the intensities of a stimulus must be 100 (*i.e.*, difference between 10,000 and $10,000 + \frac{1}{100}$ of 10,000). It is clear then, that the Law of Relativity is prominently illustrated in the case of discriminative sensibility. But two things should be remembered in this connection

(1) The ratio, though constant, is not the same in all sensations. Weber has ascertained by experiment that this ratio in the case of sight is $\frac{1}{100}$, in the case of muscular sense, $\frac{1}{17}$; while in the case of pressure or hearing, $\frac{1}{3}$.

(2) There is a limit to the discriminative sensibility itself when, for example, the intensity of a stimulus becomes very great, that is, it reaches the maximum limit (height), any further increase, however great, is no longer felt. Similarly, in the case of the lower limit, when the intensity of a stimulus comes to the threshold, any further decrease, however small, is not detected. Thus, Weber's Law is true in general with regard to stimuli of moderate intensities; and even here it is approximately true.

The above law of Weber was reduced to mathematical precision by Fechner with the help of innumerable experiments; and Fechner's law is—

Two qualifica-
tions or
limitations.

Fechner's
Law.

"If the intensity of a stimulus increases in geometrical progression, the intensity of the sensation varies in arithmetical progression." Fechner's law also, like that of Weber, is approximately true in the case of stimuli of moderate intensities.

§ 12 Relative Importance of the Different Senses The organic sense and the special senses of taste and smell are characterized by the preponderance of the affective factor In taste and smell, the very position of the senses at the entrance of the digestive and respiratory organs indicates that they are sentinels placed by Nature to warn us beforehand of what is likely to be wholesome or unwholesome to our system,

Touch is the only sense which gives us a direct and immediate knowledge of the important qualities of matter In touch the presentative factor preponderates over the representative It is the sense which brings us in the closest relation to the external world The space and force properties of objects, in various forms, are known to us chiefly through active touch

Hearing and sight being more discriminative and refined are at once sources of varied information and enjoyment In hearing, the pleasure of music and the information gathered through language, bring out clearly the importance of the sense It materially helps us in forming the idea of time, though its deficiency in respect of local character precludes it from furnishing us with an adequate knowledge of space Touch and sight, being prominently characterized by local

The Organic Sense, Taste, and Smell are characterized by preponderance of the element of feeling

Touch gives us a direct knowledge of the important qualities of matter, such as space and force properties

Hearing and Sight are sources of varied enjoyment and information

Hearing prominently contributes to our idea of Time,

Touch
ht, to

character, contribute materially to our idea of space.

our idea of Space.

Sight is the most representative of all the senses and its range is also very great. It, accordingly, gives us a knowledge of objects most remote and varied. Much of our æsthetic enjoyment can be referred to this sense.

Sight gives us a knowledge of distant objects and is the source of æsthetic enjoyment

Muscular sense, usually combined with touch and sight, increases the range of experience. The force properties of objects (and the space properties also, to a great extent) could never have been known but for the co-operation of this sense.

Muscular Sense increases the range of experience and furnishes us with a knowledge of the force properties of objects

§ 13 Exercises.

1 Define a Sensation and indicate its physiological and psychological conditions

2 Classify Sensations and enumerate their general characters

3 Compare the principle of the classification of mental operations with that of the classification of sensations

4 Distinguish between local character and localisation, acute and massive sensations, generic and specific quality, absolute and discriminative sensibility, liminal intensity and height of a sensation. Explain Fechner's Law

5. Point out the relative importance of the senses of Touch, Hearing, and Sight. Show that the sensations of the different senses are but modifications of Touch.

6. Point out the peculiarities and varieties of Muscular Sense.

7 Distinguish between Active and Passive Sense, and indicate the relative advantages of the former.

8 Is sensation first or perception first? Is pure sensation possible, even to a child in its mother's womb?

9 Point out the relation of Sensation to Perception. Which is the earlier experience?

10. Indicate the chief distinguishable aspects of sensation What is the psychological importance of extensity ?
11. Distinguish between general and special sensibility Indicate the psychological value of the sense of Taste
12. State the knowledge giving value of the sense of Smell In what respect does the sense of Smell resemble the sense of Taste ?
13. Give an account of the sense of Touch and describe its cognitive value What is the Thermal Sense ?
14. Point out the intellectual importance of the senses of Hearing and Sight
15. How do you account for the superiority of the senses of Touch and Sight as sources of knowledge ?
16. What do you understand by Active Touch and Active Sight ? Indicate their importance in the history of personal experience
17. Distinguish between a Simple and a Compound Sensation Is the sensation of white simple or compound ? How does a compound sensation differ from a group of associated sensations ?
18. What is meant by an Intellectual Sense ? and how would you arrange the senses according to their degree of intellectuality ?
19. What are the different classes of feeling now supposed by psychologists to be included under the term "Muscular Sense" ? Wherein does the experience of bending the arm differ from that of having it bent by another person, sight being supposed not to co-operate ?
20. Illustrate the Law of Relativity with regard to Sensations
21. Estimate the relative importance of the different senses as sources of knowledge and enjoyment

CHAPTER VIII.

MENTAL DEVELOPMENT.

§ 1. Growth and Development. As the life of a finite being completes a cycle within a certain period, there must necessarily be growth and development up to a certain age, after which there begin gradual decline and decay. Thus, we find different degrees or stages of physical and mental vigour intervening between the first and the second childhood of man. As our interest here is psychological and not biological, we shall confine our attention in this chapter to the conditions and course of mental growth and development with their connected cerebral processes. Before doing so, however, let us explain the distinction between Growth and Development.

Distinction
between
Growth and
Development.

(1) *Growth Physically*, 'growth' implies increase in bulk or size. The brain, for example, grows when it increases in bulk or size. The growth of the brain, for example, is completed by the 7th year. *Mentally*, 'growth' implies increase in the contents of memory as more facts are stored in the mind or retained, it is said to grow.

(2) *Development Physically*, 'development' implies the emergence of differences and the establishment of intricate relations or connections among the different parts. The brain, for example, develops when numerous connections are established among the different centres. The development of the brain

continues up to about the 40th year. *Mentally*, 'development' means the establishment of connections (of similarity, difference, or contiguity) among the materials stored up in the mind. When, for example, the mind can distinguish, identify, and associate materials leading to the formation of percepts, images, or concepts, the mind may be said to develop. Development, as we shall see, is a progress from the simple to the complex.

According to Spencer, physical and mental development are but different aspects of one form of Evolution,

According to Spencer, Physical and Mental Development are but different aspects of one form of Evolution, which governs the entire universe. Evolution is defined by him as "An integration of matter and concomitant dissipation of motion, during which the matter passes from an indefinite incoherent homogeneity to a definite coherent heterogeneity, and during which the retained motion undergoes a parallel transformation." (*First Principles*, p. 396) He tries to show that everywhere—in the physical, physiological, mental and moral world—this law is illustrated. It may be mentioned, however, that though it may generally indicate the course of evolution in the physical and physiological spheres, yet its extension to the mental and moral spheres in exactly the same sense can hardly be justified in the present stage of scientific knowledge (*Vide Element of Morals*, Chap XI, § 2 and § 3).

but the position can hardly be defended, considering the disparity between physical and psychical facts.

Mental Development depends on Habit and I^ty.

§ 2 Habit and Heredity Habit and Heredity are closely connected with mental development. As such development implies at once the emergence of new tendencies and faculties in

their proper order and the perfecting of those which have already appeared, it evidently depends for its efficacy on the vestiges of past experience as left behind by the habits of individuals and hereditary tendencies of families and the race. Let us, therefore, consider in this section the characters of Habit and Heredity.

The term Habit is used in (*a*) a narrow and (*b*) a wide sense. (*a*) In a narrow sense, habit means the tendency of the mind to think, feel, and act uniformly in a certain direction, as determined by repeated past experience. Thus interpreted, habit indicates the conservative tendency of the mind, the tendency, so to speak, to continue in a groove. Thus understood, habit is opposed to development which implies modifiability and progress. (*b*) In a wide sense, habit may be taken to include the remnant or vestige of past experience; every experience leaves a trace behind it, which enters into habit. Habit in this sense is not hostile to, but an integral part of, development. No development is possible without the traces of past experience. The traces, for example, of perception enter into imagination, and the traces of imagination in their turn enter into thought. It is by combining or modifying old materials that progress or development is possible.

Heredity implies the transmission from parent to child of certain peculiarities of structure and function, acquired in the earlier generations by repeated and uniform practice. Heredity thus ultimately rests on habit illustrated in the conduct

Habit in
(*a*) a narrow
sense is a
conservative
tendency
hostile to
development,

while (*b*) in a
wide sense is
a condition of
progress and
so essential to
development.

Heredity is
the transmis-
sion of
acquirements
from parent
to child

of a series of generations. Physiology testifies to the fact that every psychosis is attended with a nervous modification in the brain, and repeated experiences of a particular kind (*e.g.*, perception of objects in space) deepen a nervous modification in an individual, which he transmits to the next generation. The faint inherited nervous modifications in this generation are further strengthened by personal experience, and the result is again transmitted to posterity. In this way, in the course of several generations, the cumulative effect becomes sufficiently marked and makes itself felt as an inherited tendency to think, feel, or act in a certain way. Inherited dispositions, though ultimately resting on ancestral experience, are in the later generations innate tendencies; they are not acquired by the individual in the course of his experience, but are received by him from his progenitors in connection with certain features of the nervous system, which has been modified in certain ways by repeated exercises. They represent an acquisition made in the course of the history of the race. Heredity is illustrated in a *general form*, affecting members of a class or community, or in *special form*, colouring the mental peculiarities of a family.

Inherited dispositions, though originally acquired, operate as innate tendencies afterwards.

Heredity is either general or special

Development implies that the later operations are more numerous, perfect, and flex faculties

§ 3 Characteristics of Development

The mental operations of an adult as compared with those of a child are—(*a*) first more numerous and various (*b*) secondly, characterized by greater degree of perfection, and (*c*) thirdly, as a whole, more complex. This aggregate of changes implies that, (1) while the faculties have each developed

singly, (2) there has been a certain order of unfolding among them, so that, some have reached mature vigour before others.

(1) *Development of Separate Faculties.* The development or improvement of a faculty includes —(a) improvement in a definite direction, that is, old operations become increasingly easy and rapid, requiring less stimulus, less effort of attention, and so on, (b) improvement generally, that is, new operations of a similar grade of complexity also grow easier, and (c) attainment of the capability of executing more complex, intricate, and difficult operations. Thus, the development of Memory implies that we retain familiar facts better, that we learn new facts more easily, and that we remember details and peculiarities with greater ease.

(2) *Development of Sum of Faculties.* The well marked order in the development of Intellect is—(a) Perception, (b) Representative Imagination (covering (1) Reproductive Imagination or Memory and (2) Constructive Imagination), and (c) General or Abstract Thought (including (1) Conception, (2) Judgment, and (3) Reasoning). Since the faculties develop singly and at the same time unfold themselves in a certain order, the development of mind may be conceived as at once a succession and a simultaneous group of changes.

The distinction between the development of a single faculty and that of the sum of faculties is rather superficial. Modern psychology seeks to reduce the several operations of Perception, Imagination, etc., to certain fundamental processes, of

develop
(1) separately
as well as
(2) in a
connected
order.

(1) Separate
development
of a faculty
implies that
its exercise
gradually
becomes more
easy, perfect,
and complex.

(2) Aggregate
development
implies a
certain order
in the
manifestation
and improve-
ment of the
different
faculties

The
distinction
between
separate and
aggregate
development
is, however,

superficial, since the faculties constitute an organic whole, the development of which implies the progressive manifestation of the fundamental functions

The conditions of mental development are—

- (1) the presentation of suitable materials,
- (2) the exercise of fundamental functions,
- (3) the retention of what is experienced, and
- (4) the elaboration of new products

Without materials, there would be no occasion for mental exercise

Without mental functions, the materials would be unmeaning

which discrimination and assimilation are the most important, so that the successive unfolding of the several faculties is but a continuous development of the same fundamental capabilities or functions, employed on more and more complex materials (percepts, ideas, etc.) [Vide § 5]

§ 4 Conditions of Development. As mental development implies the gradual unfolding of more and more complex operations in the place of the comparatively simple ones, it involves (1) the presentation of suitable materials, (2) the exercise of the fundamental functions on them, (3) the retention of what is experienced, and (4) the elaboration of new products out of such experience. Thus, we find Imagination developing out of Perception, Emotion manifesting itself after Sense-feeling, and Deliberation supervening upon Random or Instinctive Activity. Let us say a word or two on each of these conditions

(1) *Materials.* If no materials be presented to the mind there would be no occasion for mental exercise. If, for example, there be no sense-experiences or instinctive promptings to activity, there can be no knowledge, no feeling, no choice. Knowledge must be relative to data, feeling, excited by an object, and volition, prompted by cravings or desires

(2) *Fundamental Functions.* Without the exercise of the mental functions on the materials presented to the mind, these are of no significance to us. Materials, not distinguished or identified, not affecting us in a pleasurable or painful way,

nor moving us to action are practically non-existent for us. The mental functions are gradually strengthened and improved by exercise powers of discrimination and assimilation thus become more acute ; feelings become deep and refined ; and volitions more judicious and stable. And the physiological condition of this deepening of a mental function is to be found in a definite modification of the brain structure, which renders it more disposed afterwards to act readily in the same direction.

3. *Retentiveness.* Every mental operation leaves a trace behind it, which constitutes a disposition to perform the same or similar operation afterwards. The growing complexity of mental life depends on the accumulation of innumerable traces of past and simpler forms of activity. The physiological condition of retentiveness is the continuance of a nerve-current in the brain in a weaker form even after the actual excitation.

4. *Elaboration.* The outcome of the accumulation of traces of past experience and the strengthened and improved forms of mental exercise is the emergence of more complex and representative types of mental activity which enable us more successfully to cope with our environment, natural and social, and thus to promote the best interests of our lives. We, accordingly, find Imagination and Thought appearing after Perception ; Emotions and Sentiments after Sense-feelings , and Deliberation, Resolution, and

If traces of past experience be not left behind, there can never be any progress (for then we have to begin anew in every case).

Neither can there be progress without the development of more complex forms of mental exercise which may enable us successfully to deal with the increasingly complex situations of life

Choice after Reflex, Spontaneous, and Instinctive Activity.

The above remarks illustrated by reference to Intellectual Development, which implies the development of the fundamental intellectual functions

Let us illustrate these remarks by reference to the developement of Intelligence. The conditions of knowledge are to be found not merely in the materials (sensations) presented to the mind, nor merely in the mental re-action in the shape of attention, but also in the fundamental mental functions exercised upon the materials. Sense-impressions attended to, but not distinguished, identified, and associated, cannot constitute knowledge. In fact, such an exercise is scarcely possible. The development of Intelligence implies, accordingly, the development of the fundamental intellectual functions from an earlier crude form to a later refined or advanced form. Let us briefly indicate this progress in the case of the different intellectual functions.

(1) *Assimilation* is manifested (a) in a crude form in spontaneous recognition and (b) in a developed form in identification, inspite of strong points of unlikeness

(I) *Assimilation*. In (a) a *crude form* it is manifested in the spontaneous identification of an object or what is called its "recognition". Recognition or identification evidently implies the detection of similarity between the present impression and its past experience. Consciousness of similarity is here present only in an implicit form. Analysis or careful examination can only reveal the presence of an assimilative factor (b) A *developed form* is manifested when likeness is detected inspite of strong points of difference. When, for example, a child recognises its father or mother attired in a new dress, it manifests the presence of assimilation in its higher form.

(2) *Discrimination.* (a) The elementary or *crude form* of discrimination is known as differentiation. When a child is vaguely aware of differences between two objects, without being exactly aware of the precise points of difference, it exercises differentiation. (b) When the precise points of difference are noted, discrimination proper manifests itself. When, for example, a boy notes the precise points of difference between, say, a goat and a lamb, he exercises discrimination in this higher or *developed form*.

(2) *Discrimination* is manifested (a) in a crude form in vague differentiation, or consciousness of difference, and (b) in a developed form in the detection of exact points of difference.

(3) *Association.* (a) In a *crude form* it is illustrated in perception. When an object is perceived, a sensation or sensation-complex reminds us by association of other qualities connected with it. Contiguity is prominently illustrated here. But, though association is present here, we lose sight of the fact owing to the prominence of the presentative factor. It is analysis that reveals the presence of association here (b) Association in a *developed form* is illustrated in memory. When an object suggests another by similarity, contiguity, or contrast, the associative factor is prominently illustrated, as when a book reminds us of its author.

(3) Association is manifested (a) in a crude form in perception and (b) in a developed form in memory.

Assimilation and association as serving to connect impressions or ideas are called *Integration*. Hence Integration and Differentiation are regarded by some as fundamental functions illustrated in Evolution. According to Spencer, these are the conditions, not of mental elaboration alone, but of evolution in general. The law of Evolution is conceived by him as "A change from indefinite and in-

Assimilation and association as combining or uniting functions are known as integration

Integration and differentiation are viewed by Spencer as the

conditions of all evolution or development ,

but these functions can hardly mean the same thing when applied to mind and matter

Owing to the essential unity of mind, its development is naturally a complicated process in which the several stages and functions are more or less implicated in one another

coherent homogeneity to a definite and coherent heterogeneity through continuous differentiations and integrations." According to Spencer, the law governs every form of evolution—physical or mental, social or individual, terrestrial or celestial. But it may be urged against the position of Spencer that differentiation and integration hardly indicate the same process when applied to physical and mental phenomena. Physical separation or disintegration is not exactly the same as the mental recognition of difference, nor can any objective connection be likened to the mental process of assimilation or association. Physical development and mental evolution can scarcely be regarded as illustrating exactly the same process.

We should remember in this connection that mental development is a very complicated process in which the several stages are not sharply marked out from one another. In fact, they overlap and condition one another, thereby betraying the essential unity of the developmental process. Thus, Imagination, though appearing in an explicit form after Perception, is implicitly involved in the rudimentary form of representation implied in it. Similarly, the three intellectual functions mentioned above are implicated in one another and develop side by side. Discrimination is manifested very early in life in the shape of relativity or change. Change of impression is a condition of consciousness, and a consciousness of change is a consciousness of difference. But even relativity involves assimilation and association as well. The

facts distinguished are known as such and so assimilated, however vaguely, and we ordinarily distinguish and identify, not isolated phenomena, but aggregates of them. Thus, a child distinguishes or assimilates, not isolated qualities (such as redness or yellowness in the abstract), but aggregates of them, that is, percepts (such as a red or a yellow ball). We should also remember that the fundamental intellectual functions involve retentiveness and reproduction. We cannot discriminate, identify, or associate without reproducing or recollecting what we experienced before.

Retention should be distinguished from Reproduction. The former refers to the mind's capability illustrated between perception and remembrance or recollection. A fact is retained after it is known; and it must be retained in order that it may be recalled or revived. Reproduction is ordinarily the test of retentiveness, and retentiveness is a condition of reproduction.

§ 5 General Course of Mental Development

The development of the mind is from the simple to the complex,* from the

* *Psychological complexity* should be distinguished from *Logical*. Psychological complexity is determined by the difficulty of the mental process involved. Logical complexity, on the other hand, is determined by the fulness of meaning. Psychologically considered, a concept is more complex than a percept. It is more difficult on the part of the mind to think of the common features of a class than to think of an individual in its concrete fulness. Logically, however, a percept is more complex than a concept. The meaning or the connotation of an individual is certainly much greater than that of the corresponding notion or concept. When the development of mind is described as proceeding from the simple to the complex, simplicity or complexity is to be understood in the psychological sense of the term.

The fundamental functions involve retention and reproduction, constituting memory.

Distinction between Retention and Reproduction

The development of the mind is from the simple to the complex,

from the
presentative
to the re-
presentative.

The general
course of
mental evolu-
tion illustrated
with regard to
the develop-
ment of
intelligence
where it is
prominently
exemplified

The stages of
Intellectual
Development
are (1) Percep-
tion (2) Imagi-
nation, and
(3) Thought

(1) Perception
implies the
assimilation,
discrimina-
tion, and
association of
presentative
representative
groups
constituting
objects

(2) Imagi-
nation implies
the exercise
of the same
is on
or

presentative to the representative, from the actual to the ideal. It may generally be described as the employment of the same fundamental mental functions on materials which are more and more complex. As this general course of mental development is prominently illustrated in the evolution of intelligence, let us try to understand it at first. The remarks with regard to intellectual development are applicable, with necessary modifications, to the development of feeling and will.

Intellectual Development. The stages of Intellectual development are (1) *Perception*, (2) *Imagination* (reproductive and productive), and (3) *Thought* (including Conception, Judgment, and Reasoning). These stages illustrate the general principle of development stated above.

(1) *Perception* involves discrimination, assimilation, and association of sense-materials or presentative-representative groups. A child, for example, perceives an orange when the child identifies it as an object belonging to the class 'orange,' thereby distinguishing it from other objects, and the meaning of an orange implies an association of several qualities (presentative and representative, that is, some of which are presented and others recalled)—such as colour, form, smell, taste, etc.

(2) *Imagination* involves an exercise of the same fundamental functions on images or representations of individual objects. In memory, for example, a child distinguishes the image of a friend from

other images and identifies the image as that of his friend ; and the idea of a friend involves an association of several qualities constituting his personality. The same remark applies when one represents a centaur or a mermaid. Thus, imagination involves an exercise of the same intellectual functions on materials which are more complex than those that were present in perception It is comparatively a more difficult exercise of the mind than perception.

(3) In *Thought*, that is, in *Conception*, *Judgment*, and *Reasoning*, the same fundamental intellectual functions are exercised on general ideas. In thinking, for example, of man or horse the child distinguishes one class from others and identifies the appropriate qualities of the particular class. The notion of man or horse illustrates association also, in as much as it implies several features or qualities grouped together. Here the fundamental functions are exercised, however, not on percepts, nor on images, but on concepts or general, ideas. And general ideas are evidently psychologically more complex than presentations or representations of individual objects It is more difficult on the part of the mind to think of a class than to think of an individual—presented or represented.

The stages of intellectual development, mentioned above, cannot be regarded as indicating a strict chronological order. Mental development is a unity, the several stages of which enter into and modify one another. In fact, mental development, as explained above, is at once a successive and a

representations of concrete objects

(3) *Thought* also in its three stages of Conception Judgment, and Reasoning illustrates the exercise of the same functions on general ideas, which are still more complex from the psychological stand-point.

The stages of intellectual development act and re act on one another.

contemporaneous group of changes When the later operations are developing, the earlier ones are being perfected The earlier helping the later, and the later influencing the earlier. Perception helping imagination, and imagination helping conception, but conception in its turn enters more or less in perception and imagination, thereby making them more exact and definite.

The Development of Feeling

The *Development of Feeling* is analogous to that of Intellect. The same general principle is also illustrated here the earlier feelings (Sense-feelings) are comparatively presentative, while those that appear later (Emotions) are more representative Some of these Emotions, again, involve representation of concrete circumstances or features, while others involve representation of classes or general notions Sympathy illustrates the former, while Moral or Aesthetic Sentiments illustrate the latter Thus, here, the fundamental elements of feeling (*viz.*, pleasure and pain) and the fundamental elements of intellect are exercised on materials which are more and more complex.

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Conation
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ame
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r law

The *Development of Conation* is also quite analogous Earlier acts are generally performed in response to immediate solicitations A child, for example, does something for the gratification of an immediate want, irrespective of future consequences Earlier acts are thus governed by presentative considerations Later on, a child performs an act for some future end And, finally, a boy or an adult regulates his conduct by general ends or aims of life, such as health, wealth, honour. Thus, the funda-

mental active elements and the elementary functions of feeling and will are here gradually exercised upon materials which are more and more complex.

§ 6. Factors of Mental Development. Mental development is a complex effect determined by various factors, whose separate influence it is not possible for us to trace. But, by employing the Method of Concomitant Variations, we notice variation in mental development with the variation of this or that factor. Thus, we find that the mental development of a child receiving proper education from society is not exactly the same as that of one whose training is neglected. On carefully examining different circumstances which bring about variations in mental development, we find the factors of such development to be the following :—

*Factors of
Mental
Development :*

I Internal Factor,

I. *Internal Factor* By this is meant the mind, with its several elementary and original capabilities, and the nervous organism as intimately connected with it It consists of—

(1) *The Simple and Fundamental Capabilities of the Mind* including (a) the several ultimately indistinguishable modes of sensibility to light, sound, and so on, (b) retentiveness, the primary—(c) intellectual functions, (d) emotional capacities, (e) volitional powers, and (f) the mind's native impulse to activity and spontaneous tendency to development. These several capabilities must be assumed as present from the first. They are original properties of the mind which cannot be further analysed or accounted for.

which includes
(1) fundamental capabilities

(2) *The Inherited Dispositions* or tendencies to

and (2)
inherited
dispositions

think, feel, and act in particular ways. They are not acquired by the individual in the course of his experience, but are handed down from his progenitors or ancestors in connection with certain peculiarities of the nervous structure, which has been modified in definite ways as the result of uniform experience in certain directions. They represent an acquisition made in the course of the history of the race (*Vid Chap I, § 8.*) Heredity, as mentioned above, may be either *general* or *special*, according as the transmission of acquired characteristics assumes a wide or a narrow form.

II External
Factor which
includes

(1) natural

II External Factors By this is meant the surroundings or the environment which acts upon the mind through the nervous system. It consists of—

(1) *The Physical Environment* or *Natural Surroundings* The contents and the order of arrangement of the environment help to determine the form of our mental life. The progress of knowledge implies an increasing adaptation or harmonizing of the internal to the external order. Through innumerable interactions between the nervous system and the environment, the former becomes gradually modified in conformity with the latter.

and (2) social
surroundings

(2) *The Social Environment*, that is, the society of which the individual is a member, with which he holds certain relations, and by which he is profoundly influenced. Its action differs from that of natural surroundings in being a *moral* influence, working through imitation, sympathy, and the sentiment of obedience to authority. The social influences are necessary to a full normal develop-

Society
ideal the

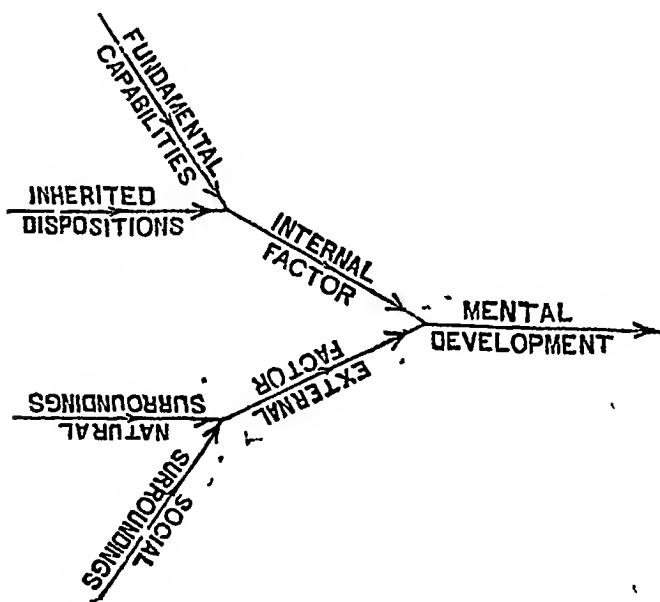
ment of mind and they embrace a wider area as life progresses. They may be of two kinds.—

(a) *Undesigned* (e.g., the influence of example) and

(b) *Designed* (e.g., the influence of instruction, moral and legal control, etc.)

It may be mentioned here that in a progressive community the social environment improves in quality with each succeeding generation. All the forces of intellectual, emotional, and volitional stimulation are thus gradually enriched and strengthened.

The above factors which contribute to mental development may be diagrammatically represented thus —



§ 7. Apperception. What is called 'Apperception' clearly illustrates the influence of mental

mind either
(a) in a
designed or
(b) in an
undesigned
way

Apperception
illustrates the
effect of

mental development on Intelligence

It involves attention and self-consciousness with a prominent exercise of assimilation and discrimination,

and so implies the interpretation of an object by reference to previous acquisitions

Thus, attention, assimilation, and association are the essential factors of apperception

the most rapid and

development on our intellectual life. The term was first used by Leibniz to indicate the stage of clear consciousness as found in man, as distinguished from vague and obscure forms of consciousness characterizing inferior grades of being. Apperception thus involves attention and self-consciousness with a prominent exercise of assimilation and discrimination. In bare perception there is the simple recognition of an object, affecting the senses, with but a vague reference to its different qualities. In apperception, on the other hand, there is perfect assimilation due to concentration and the active determination of the varied contents of the thing known. And, as the interpretation of an object is always relative to the prior acquisitions of the mind, apperception is the outcome of the interaction of presentation and mental disposition; it is the view of an object as coloured by personal character and attitude.

Apperception thus corresponds to the area of perfect vision. Attention, assimilation, and association are the influences which materially contribute to the apperceptive process. The sphere of apperception may thus be contrasted with the area of diffused consciousness. Mental Development has constantly the tendency to render apperception more and more complete. The various grades of consciousness running up to apperception may, accordingly, be said to be—(1) Unconsciousness, (2) Sub-consciousness, (3) Diffused Consciousness, (4) Attention, (5) Apperception. Of these, the first indicates rather a physiological than a

psychological condition, while the second and third represent passive attitudes, as distinguished from the last two in which the active element is prominent. The form of activity illustrated in Apperception is determined by attention and personal character as modified by previous experience.

Apperception may, accordingly, be described as the appropriation by the self of the experiences felt by it. It implies the reaction of the mind by means of its organized structure upon the sensuous materials presented to it. It thus involves what is effected by attention and association towards building up the character of the self which is reflected in all experience. The difference between a child and an adult is not merely a difference in structure or outward appearance, but also a difference in the degree of development of the knowing self: nay, the latter difference is the cardinal one, and the former is of any significance at all in so far as it is an index of the latter. Perception, for example, as illustrated in the child and the adult, is not exactly the same. It is modified in each case by the character of the person, which is reflected also in the percept. Perception implies the transformation of sensations into a world of objects and relations. But along with this process there is also transformation in the character of the percipient mind. Knowledge incorporated has a reflex effect on subsequent experience. An adult not only knows more than a child, but he is more than a child. And the commonest thing, such as the wind or water, means more to an adult than to a child.

prominent
form of con-
sciousness.

It is the
appropriation
by the self of
its experiences
and so
involves their
interpretation
in terms of its
character

Mental development implies the gradual adaptation of the inner to the outer through nervous modifications

Consciousness intervenes between primitive spontaneity and later habits

§ 8. Development as a Teleological Process. Mental development properly construed has a teleological significance It implies the increasing adaptation of the inner to the outer through the medium of nervous modifications. The conditions of stable equilibrium or of self-preservation are reached when there is a harmonious relation between the inner and the outer (natural and social surroundings) , and such a harmonious relation is established when the mind, so to speak, vibrates in unison with what is found in nature and society

It is a noteworthy fact that consciousness holds a middle ground between the primitive reflex, spontaneous, and instinctive movements on the one hand and the acquired habitual activities on the other The primitive movements give, so to speak, the start to life, but are not adequate to meet its growing and varied wants Hence the importance of consciousness, whose function is to regulate activities which cannot very well be managed by the primitive tendencies Thus, voluntary movements presuppose a more or less clear consciousness of the circumstances calling them forth The impressions of the senses and their revival are, therefore, the necessary conditions for the due regulation of life We find, however, that often we are required to act quite in the same manner under similar circumstances , and in this way habits are formed, dispensing with the necessity of intelligent adaptation in such cases Consciousness is then relieved in the case of habitual

movements, which are better performed mechanically than reflectively. Witness, for example, the difficulty of swallowing a pill or of walking with reflective regulation of movements. Conscious energy, which is thus spared, may now be employed for building up fresh connections and directing new activities. In this way we find that our conscious life develops out of vague spontaneity or receptivity and surveys all things calculated to further the interests of life; and the development of consciousness implies better and wider adaptations, with provision for the mechanical execution of routine-work by the formation of habits.

The lapse of consciousness with the development of habit is conducive to our interests.

Mental development has thus a teleological significance.

§ 9 Exercises.

1 What do you understand by Development? Apply your conception of development to mind

2 Indicate the different stages of Mental Development

3 Explain the factors entering into the development of mental life.

4 Distinguish Growth, Development, and Habit. Indicate the general course of Mental Development, explaining your remarks by reference to the different phases of mental life

5 Point out the conditions and the characteristics of Mental Development, and show that it has a teleological significance.

6 Explain and examine Spencer's account of Evolution as a universal process governing all phenomena.

7 What do you understand by Heredity? How is it related to Habit?

8 Show that the development of the mind implies the employment of the same fundamental functions on more and more complex materials

9 Distinguish between logical and psychological complexity. Show that the development of the mind is from the

simple to the complex, from the presentative to the representative

10 What is meant by Integration? Is it essentially the same process as involved in physical and mental evolution?

11 Distinguish between Differentiation and Discrimination. Is Retentiveness essential to Mental Development?

12 What do you understand by Apperception? How is it related to Mental Development?

BOOK III.

INTELLECTION.

DIVISION I

PRESENTATIVE COGNITION

CHAPTER IX.

PERCEPTION.

§ 1. Definition of Perception. Perception is that mental process which consists in the discrimination and assimilation of a sensation or a sensation-complex and the revival of associated impressions presented before,—the whole presentative-representative group being objectified and localized somewhere in space. Perception is thus a more complex operation of mind than sensation. It is essentially presentative-representative. The perceptual process may be analysed thus —

Definition of Perception

Analysis of Perception

1. The first stage in perception consists in the discrimination and assimilation of a present sense-impression or a group of sense-impressions. For example, the first stage in the *visual perception* of an orange consists in the discrimination and assimilation of the appropriate colour and form.

I Assimilation and discrimination of sense-impressions

2. The second stage consists in the revival of impressions or qualities previously presented

2 Revival of associated

features or qualities

3 Objectification and localization

with those which are now actually present. For example, the smell, the touch, the taste, the sound etc., of orange are suggested by the colour and form *actually presented*, as mentioned in the last paragraph. This suggestion takes place by means of contiguity.

3. The presented impressions and the represented qualities are next viewed as constituting a single object (namely an orange), situated somewhere in space, that is, in a certain direction and at a certain distance from the observer. The third stage, accordingly, consists in objectification and localisation. These three stages, though analytically separated, actually go together and by their combined influence determine perception.*

§ 2. Sensation and Perception. The points of difference between sensation and perception may briefly be indicated thus —

Points of difference

(1) Sensation is rather an ideal mental phenomenon, perception being the first intellectual exercise of mind.

(1) Sensation, as an elementary mental phenomenon, is rather an ideal, mental state than an actual one. Our knowledge really begins with perception. Whenever in adult life we experience a sensation, it is at once referred to an object situated in space; for example, the colour or the taste of an orange is referred to the object known as 'orange.' (*Vide Chap. VII, § 1*)

* Ordinarily perception is equivalent to any kind of knowledge, as when one says—"I perceive a similarity between two ideas" or "a connection between premises and conclusion." Earlier writers employed the term in much the same way, modern psychologists, however, restrict the word to the sense knowledge of external objects which, as 'External or Sense perception', is sometimes distinguished from 'Internal Perception' or the mind's cognition of its own states.

(2) Sensation is presentative ; while perception is presentative-representative, as shown above.

(3) Sensation is an elementary psychosis connected with the mind , but perception implies an extra-mental reference in the shape of objectification and localisation.

(4) Sensation is a comparatively passive mental experience, while perception is more active. In sensation the mind is recipient, merely having an impression due to the stimulation of a sensory nerve and centre. No doubt, some activity in the shape of attention is involved even in sensation ; but, as compared with perception, the active factor is subordinate. In perception, on the other hand, the mind is more actively disposed, in as much as the presentative-representative group is referred to an object, which is discriminated, assimilated, and localized.

We have already explained the physiological conditions of Sensation. (*Vide* Chap. VII, § 2) The physiological conditions of Perception may briefly be indicated thus.—Perception as an active mental exercise, implying attention and localisation, involves an exercise of (1) the motor centres. But Perception is presentative-representative, involving sensations, ideas, and association. To account for the different sensations or their representations, we must suppose the exercise of (2) different sensory centres of the brain (as optic, tactful, auditory, *etc.*) Association is explained by the fact that the different centres, motor and sensory, involved in perception, are connected by

(2) Sensation is presentative, while perception, presentative-representative.

(3) Sensation is abstract and elementary, while perception is comparatively concrete and complex

(4) Sensation is rather a passive condition ; while perception, an active attitude.

The physiological conditions of perception are the exercises of sensory and motor centres and their connecting nerves

(3) nervous paths Thus, there are involved (1) motor centres, (2) sensory centres, and (3) connecting nerve-fibres with definite modifications or physiological dispositions (*Vide Chap. X, § 4.*)

Though all the senses give us a knowledge of outward objects, Touch and Sight are generally regarded as the special channels of perception for the following reasons

§ 3 Relative Importance of the Channels of Perception Perception is not restricted to any one particular sense in tasting sugar, in smelling a rose, in lifting a weight, in catching a cat, in hearing a gun, or in seeing a flash of lightning we perceive things. But, though all the senses thus furnish the mind with a knowledge of outward objects* and their qualities, Touch and Sight are viewed as the special channels of perception. No doubt, Hearing too enables us also to have a fair knowledge of outward objects and their properties, but Touch and Sight are superior to this sense in this respect. Touch and Sight are regarded as the special channels of perception for the following reasons —

(1) They are endowed with local character,

✓ (1) They are endowed with local character and are thus better fitted to supply the mind with an idea of space

(2) their exercise ordinarily involves muscular experience,

✓ (2) Their exercise ordinarily involves muscular experience, which also contributes materially to the development of the idea of space; and, in the case of active touch, the muscular sense supplies a knowledge of the force-properties of objects

* Sensations, when not involving perception or extra organic reference, generally involve localization or intra organic reference for, when they are not referred to some object in space, they are referred to the sense-organ or the part of the organism through the stimulation of which they are produced

(3) These senses are more discriminative or refined than the other senses. No doubt, in point of refinement, Hearing is superior to Touch, but Hearing is wanting, to a great extent, in local character as well as in mobility. Thus, Hearing, though an important channel of perception (illustrated prominently in our estimate of language), is inferior to Touch and Sight.

The relative importance of *Touch* and *Sight* as channels of perception are found in the following peculiarities.—

Touch gives us a more direct knowledge of the qualities of objects it is more presentative. Whenever we are in doubt as to the real character of a material body, we appeal to touch. It is the only sense that supplies the mind with a knowledge of the force-properties of objects (for example, weight, hardness, etc.). Even with regard to the idea of space, touch gives a more definite and complete notion than sight, for the third dimension of space or distance is in a definite and adequate form directly made known to us by active touch alone. Sight but suggests this definite and adequate estimate through certain visual signs. (*Vide* § 7.)

Sight, on the other hand, is more representative: it suggests several qualities, directly known through touch and other senses, by means of visual signs. The range of sight is much wider than that of touch, we may see, for example, the heavenly bodies which we can never expect to touch. Again, sight can take in a comparatively wide range of

and (3) they are more refined or discriminative
Hearing, being deficient in local character and mobility, is inferior to Touch and Sight as a channel of perception

Relative importance of Touch and Sight

Touch gives us a more direct and adequate knowledge of material bodies and their qualities.
The force and space properties are better known through it

Sight is more representative, discriminative, and extensive in range

objects at a glance, we may simultaneously see many objects which we cannot possibly touch at the same time. Further, sight being more discriminative, it enables us to notice fine and subtle differences among objects that may be missed by touch. In adult life it is ordinarily employed as the channel of perception. In insects and worms, smell probably takes the place of sight in respect of importance.

The space
and force
properties of
bodies are
more
important
than the other
qualities for
the following
reasons

(1) They are
found in
almost all
material
bodies and
are less
variable

(2) Men agree
more about
these
properties,
+

v i i
n also
are fixed
definite

§ 4 Primary and Secondary Qualities of Bodies Of the several qualities known through the channels of perception, mentioned above, the most important are the space and the force properties of objects. The superior importance of these properties is to be found in the following facts —

(1) *Objective Traits* (a) all material objects must possess these properties more or less, while colour or taste or smell may be present in some but absent from other objects (*e.g.*, air has no colour)

(b) These properties are comparatively constant in one and the same object, its size or weight is evidently less liable to fluctuation than its taste or smell or colour. An object, for example, possesses size or weight always, but emits sound only when in a state of vibration.

(2) *Subjective Traits* (a) Men agree more about the space and force properties than about the other qualities referred to above (b) One and the same individual holds a comparatively fixed opinion with regard to the primary qualities than with regard to the secondary, which

often vary with the varying conditions of organs (e.g., smell, colour, temperature, taste, etc.).

For the reasons set forth here the force and space properties of objects are very important and are thus called the *primary qualities* of bodies. Aristotle described them as 'common sensibles,' being found in all material objects and perceived (more or less directly) through all the senses. The qualities of objects known through the special affections of the different senses (e.g., colour in sight, sound in hearing, sweetness or bitterness in taste, etc.) are evidently less important as *elements of knowledge* and are thus described as the *secondary qualities* of bodies. Aristotle called them the 'proper sensibles,' being peculiar to the different senses.

It may be mentioned here that Hamilton and Mansel call the space-properties alone primary, while the force-properties, as revealed to muscular sense, are called by them '*secundo-primary qualities*'.

§ 5 Reference to Space, Essential to Perception. As Perception always involves objectification and localization, an adequate account of Space is essential to the elucidation of the perceptual process. Let us, therefore, explain first the way in which the idea of Space is formed and how it colours different instances of perception. But, before tracing the psychological history of this idea, we should know what is implied in it. We shall, accordingly, confine our attention in this section to the exposition of the contents of Space and shall explain the origin and development of the idea in the two following sections.

with regard
to them

Hence the
space and
force
properties are
known as the
primary
qualities
of bodies,
as distin-
guished
from other
qualities
which are
known as
secondary

Hamilton and
Mansel call
the space-
properties
alone
primary, and
the force-
properties,
secundo-
primary

Space is taken by us as the underlying continuum holding all things and indicating their relations

It appears as Extension (Plenum) and Vacuum

Contents of Space Space is believed by us to be the underlying continuum holding all things and indicating their mutual relations. It is homogeneous, continuous, and infinite, it extends in three directions—length, breadth, and depth. It is conceived by us definitely by reference to movement—it affords room for movement and may be described as made up of all those positions, infinite in number, which a moving body may possibly occupy, if unresisted or unobstructed. Space appears to us in two principal forms, *viz.*, as *extension* or occupied space and *vacuum* or unoccupied space. *Extension* is illustrated in the occupation of space by objects. It may be described as that fundamental quality of matter by which it occupies space. It involves the three dimensions without any necessary reference to size or form. *Vacuum* or *Void* is represented by the space between and beyond bodies which are found as extended. The existence of a perfect void has been disputed by some thinkers, and there is no room for it in the system of Descartes, who identifies matter with extension. The distinction, however, between extension and vacuity or, as the Atomists say, between *plenum* and *vacuum*, is as old as history. The existence of 'void' has been differently admitted by different thinkers—the Pythagoreans and the Epicureans, for example, affirming its existence both inside and outside the world, the Stoics, only outside, and Strato, only inside it.

Logical analysis reveals the contents of space as implying that—

(1) It is homogeneous everywhere : any portion of space occupied or traversed by one body may as well be occupied or traversed by another.

(1) homogeneous,

(2) It extends or stretches in three directions—length, breadth, and depth or distance—each of which is without any limits. The supposition of any limit to space is suicidal, for the supposed limit must be *in* space and so the limit gives way. "A spatial limit", observes Stout, "is the boundary line between one part of space and an adjoining part ; it is a limit *in* space and cannot therefore be a limit of space" (*Manual of Psychology*, p. 514.)

(2) infinite, extending in three directions,

(3) Excepting the relative difference of situation or direction among its parts, there is no absolute difference or peculiarity by which one part may be distinguished from another. An object situated anywhere may move in any direction and occupy any position. Thus, space is *homoloidal* : parallel straight lines drawn in any direction may be indefinitely extended without either convergence or divergence.

and (3) without any absolute difference of situation or direction.

§ 6 Origin of the Idea of Space. With regard to the origin of the idea of space two extreme views have been held, *viz.*, (I) the Empirical and (II) the Intuitive. (I) The Empirical account is that the idea is a mere abstraction formed from motor experience, proximate or remote. (II) The Intuitive view is that the idea is innate or connate, which experience generally unfolds and renders more or less definite and precise. Let us briefly examine these views one by one :—

Two extreme views of the origin of the idea of Space.—
(I) Empirical and (II) Intuitive.

(I) The Empirical View appears either (1) as out and out Empiricism or (2) as Empiricism modified by Evolution

(1) From the stand-point of Pure Empiricism, the idea of Space is wholly a development out of motor experience (Mill and Bain)

According to this view, Space is not a reality but an abstraction, representing possible muscular sensations

(I) The Empirical View The empirical view again may be considered in two forms (1) As determined simply by the personal experience of each individual, or (2) as modified by the inherited tendency, derived from ancestral experience We shall consider these separately here

(1) *Pure Empiricism* From the stand-point of pure empiricism the idea of space is wholly derived from the motor experience of every individual According to the supporters of this view (e.g., Mill and Bain), our primary knowledge of extension or space is gained from muscular sense or active touch empty space is but the possibility of movement, as represented in unimpeded locomotive energy, while extension or occupied space is but obstructed movement or impeded muscular activity The distance between two bodies is likewise represented by the amount of muscular energy to be expended in passing from the one to the other Distance, as Mill says, implies "the length of time, or the quantity of motion, that would be requisite for reaching the object if near, or walking up to it if at a distance" Thus, space, according to this view, is not a reality or any actual attribute of the real world . it is but an abstraction due to muscular experience What we call space represents merely the possibility of muscular sensations connected with movement When, for example, a child moves his hand from A to B, the child experiences a series of muscular sensations corresponding to the successive positions of the hand. The series is powerfully impressed upon the mind

by repetition, change of velocity, or reversal of the movement. Thus, the series of muscular sensations comes to represent space of a definite direction and range, *viz.*, from *A* to *B*. By performing other complementary pairs of movements of varying direction and range, the idea of space is further enlarged ; and the idea is finally completed by locomotion. Sight, according to this view, does not directly contribute to this idea . sight merely suggests by association the idea primarily formed from experiences of active touch. Space thus turns out to be but an idea or abstraction corresponding to the muscular sensations experienced in connection with movement.

Criticism of the View. The above account of space is not consistent with facts presented to the mind. (1) The world, as presented to the senses, can never be apprehended or understood but by reference to the attribute of space. Space or extension is an inseparable attribute of Matter and is the basis of what are known as the *primary qualities of bodies*.

(2) It is true, no doubt, that space by itself can never be presented to the senses ; but this is a peculiarity of every attribute connected with substance. We recognise space, either in the form of plenum or vacuum, in relation to material objects

(3) The development of the idea of space out of movement or muscular sensations involves a vicious circle. Movement is intelligible only in relation to space thus space is assumed and not evolved.

Active touch
primarily
furnishes
the idea,
which is
subsequently
but suggested
by sight.

This view is
inconsistent
with facts
For—

(1) Space is a
necessary
attribute of
matter

and (2), like
every other
attribute, can
never be
presented by
itself.

(3) Movement
presupposes
space.

(4) Muscular sensations are phenomena in time which can never develop the idea of co-existence essential to Space

(2) From the stand-point of Evolutional Empiricism the idea of Space is innate in the later generations of mankind through the influence of heredity, though originally it was derived from experience (Spencer)

This view also is untenable, since
experience

(4) Muscular sensations are but psychical phenomena in time , and mental states associated by *succession* can never possibly develop the idea of *co-existence* which is the essence of space and extension

(2) *Evolutional Empiricism* The supporters of Biological Evolution hold an analogous view. Their position may be described as Qualified Empiricism, or Empiricism Modified by Heredity They trace the idea of space to ancestral experience "I believe," writes Spencer, "the intuition of space, possessed by any living individual, to have arisen from organised and consolidated experiences of all antecedent individuals who bequeathed to him their slowly-developed nervous organisations" , and, he adds, "I believe this intuition, requiring only to be made definite and complete by personal experiences, has practically become a form of thought, apparently quite independent of experience" (Spencer's *Letter to Mill*, quoted by Bain in his *Mental and Moral Science*, p. 722) Thus, from this stand-point, space is ultimately an abstraction formed from motor experience, though, owing to hereditary influence, it has become, in course of time, an inherent tendency of mind. (*Vide Chap I, § 8*)

Criticism of Evolutional Empiricism The criticism of Pure Empiricism is applicable also to this qualified form of the theory. Experience, whether personal or ancestral, can never develop a new idea Credulity, no doubt, is tickled to accept a theory which is alleged to be countenanced by *long and*

remote experience, but mere antiquity or extended experience can never work miracles. Psychoses, as remarked above, are phenomena in time, they can never evolve spatial co-existence.

personal or ancestral) can never create anything entirely new

(II) The Intuitive View From the intuitional stand-point, as mentioned above, the idea of space is inborn in us, which is gradually perfected by experience. This intuitional view wears also two distinct forms, according as it is connected (1) with the *idealistic attitude*, which regards space as merely a subjective form without any objective validity, or (2) with the *realistic interpretation* of experience, which construes space to be a reality of which an idea is present in our mind from the beginning of life, implying adaptation of the inner to the outer world

(II) The Intuitive View is that the idea is inborn in us, developing gradually by means of experience. It wears either (1) an idealistic or (2) a realistic form.

(1) *Idealistic-Intuitionism* From this stand-point the idea of space is but a *subjective* tendency, which leads us to *suppose* that the objects presented to the senses are extended and situated in space. According to Kant, for example, we can have no access to the noumenal or real world, we only dress up a world of percepts according to our subjective constitution as determined by the *a priori* factors. Space, according to this view, is only a mental 'form' applied to the materials presented to the mind. Space is thus not a reality but a mental condition which necessitates the mind to conceive things as extended. Space, from this stand-point, is not a general notion or category of the understanding, it is a 'form' of sense which modifies presentations. It is, as it were, a subjective hue

(i) From the stand-point of Idealistic Intuitionism, Space is but a mental condition which leads us to construe objects as extended, though they may not be actually so (Kant.)

which colours objects presented to the mind ; but the objects themselves must not be conceived as having that colour or form

This view also
is inconsistent
with facts
For—

(a) Space is a
real attribute
of matter,
existing—
whether
perceived or
not.

(b) The
applicability
of the idea to
objects
implies their
corre-
spondence

Criticism of the View (a) The idealistic interpretation of space, like the empirical, is unwarranted by facts As mentioned above, space or extension is a real attribute of outward objects, which continue to exist whether we perceive them or not The primary or essential qualities of bodies are intelligible only by reference to space. (b) The critical idealism of Kant is not even consistent as a theory Does not the very applicability of the 'form' to the 'matter' imply a correspondence between the two ? If the materials presented to the mind be devoid of extension or space-attributes, then how can the mere subjective form of space be applied to factors altogether unlike ? Can we represent love or tooth-ache as extended ? Teleology rather creates the presumption that, corresponding to the *a priori* form or tendency, there is a real attribute in the objects themselves

(2) From the stand-point of Realistic Intuitionism, the innate idea of Space corresponds to real Space without (McCosh and Martineau)

(2) *Realistic Intuitionism* According to this view, space is, no doubt, a 'form' or *a priori* tendency of the mind which leads it to perceive objects as extended , but this form or original tendency is adapted to the requirements of the field where it finds its play The very fact, that the form of space is applicable only to the objects of outer sense, shows that there is correspondence between the 'form' and the 'matter' The applicability reveals that there is space without corresponding to the idea of space within.

This realistic form of intuitionism is supported by McCosh and Martineau, and it seems to be quite reasonable. Space, according to this view, though an *a priori* form of the mind, is countenanced by the real constitution of things. The mental world is adapted to the real. This view is in harmony with the teleological interpretation of the universe and not inconsistent with the doctrine of natural selection, rightly construed. We find in the case of men and animals the presence of instincts which are adapted to the environment in which they have to live. It is quite in keeping with this adjustment of the internal to the external world to maintain that, corresponding to the extension of the material world, there is an *a priori* tendency in the mind.

It is consistent with teleology and supported by the correspondence of instincts with the needs of life

§ 7. Development of the Idea of Space
The psychological question of the origin of the idea of Space leads us also to consider the course of its development. Even when we take it to be *a priori*, still there is room for its evolution. The latent tendency is not equivalent to the fully-formed product. Hence, there is ample room for experience to render the innate idea definite, significant, and comprehensive. But, though experience unfolds the idea, experience does not create it. That we have a primitive knowledge of extensity is evidenced by the experiences of almost all the senses. As Prof. James points out, the distinction between voluminous and acute impressions is present, more or less, in every sense. "We call," he writes, "the reverberations of a thunder-storm

Even if the idea of Space be *a priori*, there is ample room for experience to develop and perfect it.

The primitive knowledge of extensity is evidenced by almost all sehse-experience. Testimonies of James and

more voluminous than the squeaking of a slate-pencil, the entrance into a warm bath gives our skin a more massive feeling than the prick of a pin : a little neuralgic pain, fine as a cobweb, in the face, seems less extensive than the heavy soreness of a boil or the vast discomfort of a colic or a lumbago , and a solitary star looks smaller than the noonday sky Muscular sensations and semicircular-canal sensations have volume Smells and tastes are not without it , and sensations from our inward organs have it in a marked degree Repletion and emptiness, suffocation, palpitation, headache, are examples of this , and certainly not less spatial is the consciousness we have of our general bodily condition in nausea, fever, heavy drowsiness, and fatigue. Our entire cubic content seems then sensibly manifest to us as such, and feels much larger than any local pulsation, pressure, or discomfort." (*Text-Book of Psychology*, pp 335-336) Though, however, a rudimentary idea of space or extensity is thus, more or less, involved in the exercise of every sense, yet we find sight and touch contributing materially to the development of this idea. The rudiment is there, experience only makes it explicit and perfect "The most probable conclusion," writes Stout, "is that a vague spatial perception is congenital even in human beings, but this original endowment only supplies a rudimentary starting-point for a highly elaborate and complex development" (*Manual of Psychology*, p. 378.) We can, with the help of experience, distribute and measure and localize what was but a vague impression before Thus, we

should distinguish the primitive *local character* from the developed *localisation*, the fundamental experience of *extensivity** or mere massiveness or voluminousness from the derivative idea of *extension*, involving distribution of parts and the "internal distinction of position, direction, and distance." (Stout, *Manual*, p. 349) In order to the adequate development of the idea of extension or space, two conditions are essential, *vis.*, (a) local character and (b) movement. As these two conditions are prominently illustrated in Touch and Sight, these organs have usually been regarded as the main sources of our knowledge of space. Let us see to what extent they contribute to this idea.

(A) Tactual Perception of Space

I. *The Contribution of Movement.* To understand the influence of movement alone, let us suppose local character away and the hand reduced to a mere finger-tip. And, to understand the influence of touch alone, let us suppose sight away. Imagine a blind child moving his finger-tip from one point (say, his breast) to another (say, the edge of his cradle). (1) In moving his finger-tip from one point, *A*, to the other point, *B*, the child experiences a series of muscular sensations corresponding to the successive positions of his hand (finger-tip). Owing to retentiveness, the preceding members

Difference between local character and localization, extensivity and extension

The idea of Space develops by means of (a) local character and (b) movement, which are prominently illustrated in Touch and Sight

Touch and Sight, therefore, are regarded as the main channels for the perception of Space

(A) Tactual Perception of Space

(1) Contribution of Movement.

By (1) moving the hand or finger-tip from one point to another,

* "This extensivity," remarks James, "discernible in each and every sensation, though more developed in some than in others, is the original sensation of space, out of which all the exact knowledge about space that we afterwards come to have is woven by processes of discrimination, association, and selection" (*Text-Book*, p. 337)

of the series would not be instantly forgotten, but would overlap the succeeding members. When the hand is at *B*, the child would, accordingly, experience a group of muscular sensations corresponding to that final position, supplemented by a representation of the preceding members of the series. And thus the child may be said to have the *perception* of movement of a definite direction and range (*viz.*, from *A* to *B*). (2) Repetition of the movement, (3) change of velocity, and (4) reversal of movement would forcibly impress the series as a definite one upon the young mind. If now the hand be at any one of the intermediate positions, the child would naturally be led to think of the associated members of the series as made up of co-existing points, justifying instantaneous recollection of the preceding members and anticipation of the succeeding ones. The child would regard the succeeding members as waiting for him, as it were. Thus, the idea of co-existence would be disengaged from that of succession, the idea of space from that of time.

When, in this way, the idea of space grows definite and clear, it would (5) be enlarged and improved by the performance of other complementary pairs of movements in different directions and of varying range (6) The use of both the hands and finally leg-movements would further enlarge the idea and tend to make it more complete.

It may be mentioned in this connection that, corresponding to every change of direction, there is a difference in the *kind* or *quality* of muscular sensations involved, and corresponding to a change

(2) repetition of the movement,
 (3) change of velocity, and
 (4) reversal of the movement, a child would have a rudimentary perception of movement of a definite direction and range

The idea of Space would be further enriched and widened (5) by the performance of other complementary pairs of movements and (6) by the use of both hands legs

Change of direction implies variation in

of range, there is a difference in the *quantity* or *amount* of muscular energy expended : a variation in direction brings new muscles into play or involves a different exercise of the old muscles, and thus it brings about a qualitative difference in muscular sensations , while a variation in range means a difference in the quantity or intensity of muscular sensations The qualitative difference underlies our estimate of *Form* and *Direction*, and the quantitative difference underlies our estimate of *Distance* an exploring organ determines Form by the direction of its movement ; and it ascertains Distance by the range of its movement. And, as the position of an object is determined by its distance and direction, the quantitative and qualitative differences in muscular experience become a measure of *Position*. Similarly, the *Size* or *Magnitude* of an object is determined by the quantitative and qualitative aspects of muscular sensations, accompanied by a sensation of touch In the case of a very small object which we can grasp with the hand, the qualitative aspect alone, corresponding to the position of the hand, aided by a sensation of contact, may suffice (*e.g.*, when we hold a marble or a cube in the hand), while in the case of a very large object (*e.g.*, a building or a town), the quantitative aspect, connected with the arm and leg movements, plays a prominent part. Ordinarily, however, in our estimate of the size of an object, the two factors go together, though in varying proportions, according to the requirements of a case

What the idea of Space would be as simply

the quality of muscular experience, while change of range implies variation in its quantity.

The qualitative difference underlies the estimate of Form and Direction, while the quantitative difference underlies the estimate of Distance.

Both qualitative and quantitative difference enter into the estimates of Position and Magnitude

As the idea of Space develops through the combined influence of Movement and Local Character, let us now consider the latter

derived from movement is more than we can definitely conceive. The idea of space is actually developed through an extended organ. "We may suppose at the outset," observes Stout, "on the one hand experience of mere extensity, and on the other experience of active movement. Neither of these experiences is in itself, properly speaking, spatial. Spatial relations begin to exist for consciousness only in so far as the experience of extensity combines with the experience of active movement." (*Manual*, p. 377) Let us, therefore, now consider the influence of Local Character on the development of the idea of Space.

(II) Contribution of Local Character

Meaning of Local Character

It is an original endowment for the perception of extensity

Local differences enable us to estimate discrete as well as extensive quantity

(II) *The Contribution of Local Character.* Local character or signature is, as Stout observes, "that differential quality of sensation which varies with the part of the sensitive surface stimulated and not with the nature of the stimulus" (*Manual*, p. 346). Though a sensitive surface, tactile or visual, is stimulated in a uniform manner, yet the impression produced through one point is felt as distinct from what is produced through another. There is, thus, a primitive datum for the perception of extensity.

The local differences combined enable us to estimate not merely discrete but also continuous or extensive quantity. "Suppose," says Dr. Ward, "a postage stamp pasted on the back of the hand, we have in consequence a certain sensation. If another be added beside it, the new experience would not be adequately described by merely saying we have a greater quantity of sensation, for

intensity involves quantity, and increased intensity is not what is meant." (*Encyclo. Brit.*, XX, p 54) Though, however, there is thus a native provision for the apprehension of *Extensivity*, yet experiences of movement render this original tendency more precise and definite. (a) When, for example, a child moves a limb (say, his hand) to another part of his body (say, his mouth), the child experiences a series of muscular sensations underlying the movement, supplemented by distinct tactual impressions in the two parts, varying in local signs, due to what is called '*double contact*.' Repetition, change of velocity, and reversal of movement would lead the child to localize the parts (*viz.*, his hand and mouth) relatively to each other. When, likewise, the hand is moved from one part (say, the breast) to another (say, the mouth), a series of muscular sensations is experienced, which is preceded and followed by tactual sensations of distinct local colouring due to double contact, and this would lead to the localization of these parts (*viz.*, the breast and mouth) in relation to each other. By a similar performance of other complementary pairs of movements with regard to other parts of his body, the child would localize them relatively to one another and would thus acquire a more or less definite knowledge of the relative situation of the different parts of his organism.

(b) Again, when a child moves an extended surface (say, the palm of his hand) over a fixed point (say, the tip of a pencil), the child experiences a series of muscular sensations corresponding to the suc-

The original local differences acquire definite significance through movement. Thus, (a) different parts of the organism are localized with reference to one another

and
(b) different points of a sensitive surface are similarly localized.

cessive positions of the hand, and also a series of tactal impressions corresponding to the successive points of contact. Repetition, change of velocity, and reversal of movement would lead the child to associate the one with the other series and thus to localize the different points on the surface of the palm. In this way the localisation* of other points on the surface of his body would gradually develop. When localisation of the bodily surface is thus perfected, the child is able to form a comparatively definite idea of *Extension* without movement. With the hand at rest, for example, the child would recognise the extended character of a surface which is in contact with it.

* Localisation develops out of local character or signature with the help of movement. Stout writes, "Localisation is the technical term used for perception of the spatial relations of the part of the sensitive surface affected by a stimulus. Projection is the technical word used for perception of the spatial relations of an object external to the organ itself" (*Manual*, p. 371). As localisation presupposes local character, so projection presupposes the natural tendency on the part of the mind to refer impressions to the peripheral extremities of sensory nerves. So strong is this natural tendency that, even when a limb is amputated or removed, there is still the disposition to refer a sensation to the periphery of the lost limb. Müller in his *Physiology* records several such instances. Here is one: "A student named Schmitz had his arm amputated above the elbow 13 years ago, he has never ceased to have sensations as if in the fingers. I applied pressure to the nerves in the stump, and M. Schmitz immediately felt the whole arm, even the fingers, as if asleep." There is a like tendency to follow the cue of the rays of light in the case of vision. Janin, Duval, Trichinetti, and others have recorded cases of patients, cured of their congenital blindness, betraying such a tendency. Once Trichinetti "operated at the same time on two patients (brother and sister), 11 and 10 years old respectively. The same day, having caused the boy to examine an orange, he placed it about one metre from him and bade him try to take it. The boy brought his hand close to his eye, and closing his fist found it empty, to his great surprise. He then tried again a few inches from his eye, and at last, in this tentative way, succeeded in taking the orange. When the same experiment was tried with the girl, she also at first attempted to grasp the orange with her hand very

The idea of Space, as derived from movement and local character, involves not merely the two dimensions of length and breadth but also the third dimension of depth or distance. This is generally admitted as directly revealed to active touch. When a child, for example, moves his hand away from his body, the child comes to form an idea of distance. This idea is, no doubt, subsequently enlarged and improved by locomotion. The development of the idea of Space by means of touch is not, however, so simple and detached as may appear from the preceding account. Two important qualifications are necessary to render the account consistent with facts —

(1) Though, for simplifying the exposition, we have considered movement and local character, active and passive touch as developing one by one, yet as a matter of fact, there can never be an absolute separation between them. Every body's idea of space actually develops by the combined influence of both the factors, the one rendering clear and explicit what may be obscure

The idea of Space, thus developed, involves a reference not merely to the two dimensions of length and breadth, but also to the third dimension of depth or distance, which is directly and adequately revealed to active touch.

Two qualifications for the above account of the development of the idea of Space :

(1) As a matter of fact, Movement and Local Character co-operate in the development of this idea, though they have

near the eye, then, perceiving her error, stretched out her forefinger and pushed it in a straight line slowly until she reached her object." (*Abbot's Sight and Touch*) These facts go to suggest that localisation and projection develop *part passu*. "It is sometimes stated," says Stout, "that localisation precedes projection. But this is inaccurate; for the knowledge which the child acquires of the special relations of its own body involves both projection and localisation. Indeed localisation could only exist in an extremely rudimentary form, if at all, apart from projection. The true way of putting the case is to say that combined projection and localisation precede mere projection. Projection depends on the process of active touch in which the controlling interest lies in obtaining the connected experiences arising from successive application of the tactful surface to different things or different parts of the same thing. This process also gives rise to localisation when the surface explored is the sensitive surface of the body itself" (*Manual*, p. 371)

been treated
separately
above

and implicit in the other. What is vaguely presented as a synthetic unity or mere local extensity to passive touch is broken up into its constituent elements and thus made distinct and prominent by active touch or movement. "The main lesson that we learn from study of the blind," remarks Stout, "is that all development in the definiteness of the perception of spatial order is essentially due to the intimate union and co-operation of synthetic [*i.e.*, passive] and analytic [*i.e.*, active] touch" (*Manual*, p. 357.) Mere movement would not adequately develop the idea of co-existence, and mere extensity would not unfold the distinction of parts implied in spatial co-existence. Movement alone may present a definite arrangement of positions and distances, but "extension can only exist when the definite order is the order of the parts of an extensive quantum simultaneously presented." And "it is essential," writes Stout, "to the possibility of this that the experience of extensity and the experience of active movement should enter as co-operative factors into a process having unity and continuity of interest. A process having unity and continuity of interest leaves behind it as a whole a total disposition,—a disposition to which each and all of its component factors in their conjoint interaction have contributed. This cumulative disposition is re-excited as a whole when the process is repeated in part. In this way the factors which enter into the process may become profoundly modified by their previous combination, so that each separately assumes a character

which it has acquired from its combination with the others. It comes to mean or stand for the others" (*Manual*, pp 353-354.)

(2) The idea of Space, as developing without any relation to materiality or resistance, is rather an ideal conception. Actually the two ideas develop side by side. The idea of extension helps objectification of a resisting surface, and the idea of resistance in its turn gives precision to the idea of extension. "The rudimentary idea of body gained by touch and muscular effort," remarks Sully, "is quite as early as the first idea of space gained by movement and touch. Each perception grows distinct, partly by opposition to, partly by the assistance of, the other" (*Outlines of Psychology*, p 135.) The limits, for example, of a direction are known by resistance; and the externality of Space, as a property of material objects, is realized only in its connection with a resisting surface. "Free space," as Stout observes, "acquires the character of a space separating and connecting external bodies and thus itself partakes of external reality." (*Manual*, p 366.) Thus, the idea of space in its various forms of direction, distance, position, size, and shape really develops in close connection with the notion of resistance or materiality. "It is the experience of resistance, giving a rudimentary knowledge of materiality or body, that serves to invest space with its outness or externality, that is, its independent reality." (Sully, *Outlines*, p 135)

(B) Visual Perception of Space.

(2) Actually, the idea of Space develops in close connection with the idea of materiality or resistance, though, for simplifying exposition, the development of the former is traced here without any reference to that of the latter

Space acquires its true significance as a property of matter by reference to the experience of a resisting surface.

Visual perception of Space is quite analogous to the tactful, explained above.

By (1) moving the eye or yellow-spot from one point to another in the field of vision, (2) repetition of the movement, (3) change of velocity and (4) reversal of the movement, a child would have a rudimentary perception of movement of a definite direction and range

The idea of Space would be further enriched and widened (5) by the performance of other complementary pairs of movements

As, however, the visual idea of Space is gained actually through an extended

After what has been said above relating to the tactful development of the idea of Space, very little is necessary to explain the visual process. The two processes are quite analogous.

(1) *The Contribution of Movement* To understand the influence of movement, let us suppose local character away. Imagine a child as possessing but one eye, having a single retinal point, *viz.*, the yellow spot. (1) When the child moves his eye (the yellow spot) from one point to another (say, from *A* to *B*) in the field of vision, he experiences a series of muscular sensations corresponding to the successive positions of the eye-ball. The muscular sensation corresponding to the final position, together with the representation of the preceding members of the series, gives the child a rudimentary *perception* of space of a definite direction and range. (2) Repetition, (3) change of velocity, and (4) reversal of movement tend to render the idea of the series distinct and definite. (5) Performance of other complementary pairs of movements, of varying range and direction, enlarges the series indefinitely in various directions and thus supplies a rudimentary idea of Space, like the one gained through active touch. The visual idea of Space, however, is actually gained through an extended retina and not through a single retinal point (the yellow spot). Let us, therefore, try to understand the influence of Local Character on the development of the spatial idea.

(II) *The Contribution of Local Character* (1) When a child, for example, moves his eyeball from

one object, *A*, to another, *B*, the image of *A* shifts its place from the yellow spot to the side parts of the retina, more and more distant from the yellow spot, and the image of *B* similarly shifts its place by degrees from the side parts to the yellow spot. And, side by side with this change in visual experience, there is a series of muscular sensations corresponding to the successive positions of the eye-ball. The visual series is thus associated with the muscular; and so a step is taken towards the localisation* of retinal impressions. This localisation is perfected by (2) repetition, (3) change of velocity, and (4) reversal of movement. And when, by (5) the performance of other complementary pairs of movements, the localisation of the different points of the retinal surface is effected, the child is able to perceive space without movement. With the eye at rest, the child now forms a definite estimate of an extended surface, which is but the counterpart of the different points of the retinal surface localized relatively to one another. Exercise of both the eyes still further enlarges the idea of Space as gained through sight.

retina, and not through a single retinal point, let us now consider the influence of Local Character (II) Contribution of Local Character. The original local differences acquire a definite significance through movement.

When the different points on the retinal surface are thus localized, an extended surface may be apprehended with the eyes at rest.

The use of both the eyes would further enlarge the idea of Space.

* "It is a noteworthy fact", remarks Stout, "that in the case of sight there is projection but no localisation. When we see a thing we are aware of the spatial relation of the parts of the object seen, but never of the spatial relations of the retina itself. This is accounted for by the absence of the conditions of localisation which exist in the case of touch. Nothing analogous to double contact exists in visual experience. Corresponding conditions in the case of sight would involve the existence of a sense-organ capable of exploring successively the parts of the retinal surface, and of exciting at each point of its path a retinal sensation. But we cannot explore the retina by active touch, and of course there is no possibility of seeing it. The impossibility of localising retinal impressions in the retina itself points to the dependence of localisation on projection." (*Manual*, pp 373-

The eyes can thus perceive direction, form, and size

A case reported by Dr Franz

That the eyes can thus perceive Direction, Form, and Size* can scarcely be disputed. Dr Franz of Leipzig, for example, gives the following account of a youth who had been born blind and whose eye was couched by him when the lad was 17 years of age. When the eye could bear the light "a sheet of paper on which two strong black lines had been drawn, the one horizontal, the other vertical, was placed before him at the distance of about 3 ft. He was now allowed to open the eye, and after attentive examination he called the lines by their right denominations. The outline in black of a square, six inches in diameter, within which a circle had been drawn, and within the latter a triangle, was, after careful examination, recognized

374) This view of Professor Stout is hardly tenable. Double contact, no doubt, facilitates localisation in the case of active touch, but it is not essential to localisation even there. There may be localisation of both the tactful and the visual surface by means of movement, as indicated above. When, for example, a baby alternately moves his eyes away from and towards a light, he experiences a series of retinal impressions of the light, varying in local colouring and accompanied by a corresponding series of muscular sensations. As these two series will be associated together, they would tend to suggest by their fusion, as it were, the relative situations of the different points of the retinal surface. We may very well say here what Professor Stout says of touch that the conjoint operation of local character and active movement "must leave behind it a total disposition which is the cumulative after-effect of the whole process into which they enter. Each, when it occurs separately, will occur modified by its previous conjunction with the other, because it will re-excite the total disposition due to their conjoint operation" (*Ibid.*, p. 355). Thus, local character would acquire local significance by reference to the connected muscular sensations of ocular movement.

* The real magnitude or the actual size of an object can be estimated only by measurement by means of touch. Sight gives us a direct knowledge only of the apparent magnitude or the size as it appears to our eyes. This is determined by the magnitude of the retinal image produced by the rays of light impinging on the retina. The apparent magnitude of an object is closely connected with its distance, and so an estimate of the one is more or less

and correctly described by him." (*Philosophical Transactions of Royal Society*, 1841.) Similarly, as Prof James points out, "an object appears smaller on the lateral portions of the retina than it does on the fovea, as may be easily verified by holding the two fore-fingers parallel and a couple of inches apart, and transferring the gaze of one eye from one to the other. Then the finger not directly looked at will appear to shrink" (*Text-Book*, p. 337.) Thus, the idea of a *surface* can readily be accounted for by visual experience, though it has often been doubted whether it can supply the idea of *depth*, *distance*, or *solidity*. Since the time of Berkeley, it has generally been contended that the eyes, though yielding the idea of space in two dimensions (*viz.*, length and breadth), cannot directly supply the idea of depth, distance, or solidity.* Distance, it is urged, is directly known only through active touch; sight only suggests distance through certain visual signs—such as the degree of convexity of the eyeball, the convergence or the divergence of the eyes,

Though sight thus gives us a direct knowledge of surface, it is doubted whether it can give us a similar knowledge of distance, depth, or solidity.

There is, evidently, room for this doubt, if distance or depth be understood

involved in an estimate of the other. The greater the distance, the less the retinal image or the apparent magnitude of the object seen. This apparent magnitude, as known through sight, becomes associated with the real magnitude, as known through touch, and thus, in the course of mental development, visual signs come to suggest even the real magnitude of an object.

* It is urged, for example, that solidity is suggested by the following visual signs—(1) The dissimilarity of the two retinal images produced by a solid object is an index to its solidity. A flat object produces similar images on both the retinas, while a solid object produces dissimilar images in the two eyes. This dissimilarity of visual images we come to associate with solidity as known through active touch. So that, subsequently, whenever we experience dissimilar visual images, these suggest by contiguity the solidity of an object. This is clearly illustrated in Sir Charles,

only by reference to active touch, but, if distance be taken to imply the interval between ourselves and the object perceived, it would seem to be indicated directly by sight or some other sense. Thus; it may be said that the visual signs give us no less a direct clue to distance than the muscular sensations in active touch. Testimony of Prof James

variation in the apparent magnitude of objects. Is it a fact, then, that Sight cannot give us a direct knowledge of Distance?

(a) If, of course, by distance we understand it only as apprehended by active touch, then the question is answered before it is put. (b) But, if by distance we understand the interval between ourselves and the object perceived by any sense, then it would seem that distance is as directly presented to sight as it is to touch or to any other sense capable of apprehending it. The visual signs, mentioned by Berkeley and others, give us no less a direct clue to distance than the muscular sensations in the case of active touch. "I cannot get over the fact," says Prof James, "that all our sensations are of *volume*, and that the primitive field of view (however imperfectly distance may be discriminated or measured in it) cannot be of something *flat*, as these authors unanimously maintain. Nor can I get over the fact that distance, when I see it, is genuinely *optical feeling*, even though I be at a loss to assign any one physiological process in the organ of vision to the varying degrees of which the variations of the feeling uniformly correspond. It is awakened by all the optical signs which Berkeley mentioned, and by

Wheatstone's Stereoscope. It is a peculiar and inexplicable fact of our constitution that the synthetic combination of two retinal images, instead of giving rise to a blurred and mixed impression, gives rise to a clear and definite impression of an object, with a suggestion of its outness, distance and solidity (2) Effects of linear perspective also enter into the recognition of solidity (3) The distribution of light and shade is different in the case of solid objects varying in position or magnitude (See Lloyd Morgan's *Comparative Psychology*, pp 146-147)

more besides, such as Wheatstone's binocular disparity, and by the parallax which follows on slightly moving the head. When awakened, however, it seems optical, and not heterogeneous with the other two dimensions of the visual field." (*Text-Book*, p. 347) If visual experience suggests by association the tactful estimate of distance, that does not prove that the latter is the direct and the former, the indirect form of knowledge, it may then be as well argued that the visual estimate of form and size is alone direct and the tactful estimate, indirect, since the latter invariably suggests the former, when things are handled but not looked at. If, as Prof. Stout observes, "the development of visual perception in the child is for the first three months at least almost entirely disconnected with that of tactful perception" (*Manual*, p. 373), then the visual experiences in this earlier stage as directly indicate distance as the experiences of active touch do at a later stage of mental development.

We forget, however, that our mental life is a complex whole in which each factor is modified in an important way by the rest. A purely visual, tactful, or auditory experience, like pure movement or simple local character, is an abstraction adopted only to simplify explanation which otherwise would be too intricate to be unfolded and understood. As a matter of fact, we find that though each sense supplies some knowledge of the space-properties of objects, yet the conjoint effect of the testimonies of the different senses is more efficacious than the separate declarations of a

Suggestion by association cannot always settle the question of direct or indirect knowledge.

We should remember that, our mental life being complex, the experiences of the different senses naturally come to be associated with one another and thus tend to suggest one another afterwards.

single sense. Thus, we find that, by association, the visual or the auditory perception of distance suggests the tactual, and *vice versa*, and so with regard to the other senses.

Visual Perception of Distance

(1) In the case of *Binocular Perception* the indications are

(a) Objects beyond and behind the point fixated appear as vague and double

(b) Variation in apparent magnitude

The Visual Perception of Distance may be indicated* thus :—

(1) In the case of *Binocular Perception*, '(a) all objects beyond and behind the point fixated seem to be more or less vague and double "Distance from the area of distinct vision, behind or before it," writes Prof Stout, "is supposed to find its full and ultimate explanation in the disparateness of the position of like impressions in the two retinas, the degree of distance corresponding to the degree of disparateness" (*Ibid*, p 387) This disparateness of the impressions in the two eyes, suggesting duplication of objects, is an important sign of distance It is aided by muscular sensations which, in the case of near objects, indicate that the eyes are more convergent, while, in the case of distant objects, that the eyes are more divergent. (b) Variation in apparent magnitude also enables us to estimate distance by means of sight : the retinal image seems smaller and smaller as an object recedes, and it becomes larger and larger as an object advances towards us "The imitation of this systematic diminution of size with increasing distance is in the hands of the artist a most potent means of producing stereoscopic

* Most of the indications given below were pointed out by Bishop Berkeley (1685-1753) He regarded them as mere signs suggesting distance directly revealed to touch

effect." [Stout, *Ibid*, p. 394.] (c) The degree of convergence or divergence of the two eyes, as made known to us through accompanying muscular sensations, is also a means of knowing distance. (d) The effects of aerial perspective indicate distance in the case of very remote objects. With the increase of distance an object becomes more and more hazy and indistinct : "The green of the vegetation is only visible at a certain distance ; at a greater distance it gives place to a blue tint derived from the intervening air." (Stout, *Ibid*, p. 398.) Similarly, the partial obstruction or interception of the outline of an object by that of another suggests that the one is more remote than the other. (e) The play of light and shade (often imitated by artists in what is called 'modelling'), a 'cast-shadow' of an object, and variation in the form or appearance of an object with a variation in position or direction contribute also, to a certain extent, to the visual perception of depth or solidity.

(2) In the case of *Monocular Perception*, the most important means of determining distance is the degree of convexity of the eye-ball, coupled with a variation in the distinctness of optical impressions in the case of objects which are nearer or more remote. "Thus", writes Stout, 'in fixing the eye successively on more and more distant points of a line, the lens will be accommodated at any moment for the point looked at and yield a distinct image of this. Points nearer or more remote will produce progressively more indistinct

(c) The convergence or divergence of the two eyes as known to us through the connected muscular sensations
 (d) The effects of aerial perspective in the case of very remote objects and the partial interception of outline by intervening objects

(c) The distribution of light and shade, cast-shadow, and variation in form or appearance.

(2) In the case of Monocular Perception, the indications are —
 (a) Degree of convexity of the eye-ball
 (b) Degree of distinctness of optical impression.

and diffused impressions, the greater is their distance from the fixation-point. As the glance moves to and fro along the line, the indistinct becomes progressively distinct, and *vice versa*. Thus, we have a total experience analogous to that accompanying increasing or decreasing convergence of the two eyes. The result in this case also is a perception of position and distance in the third dimension. Here, too, muscular sensations probably contribute to the result. The adjustment of the lens depends upon a muscle which by its contraction slackens a ligament to which the lens is attached. When the ligament is slackened, the lens, owing to its own elasticity, bulges and becomes more convex. There are distinct motor sensations accompanying this process of motor accommodation. As, in the case of binocular vision, a series of motor experiences, accompanying movement of the eye-ball, are conjoined with a series of optical experiences, due to the varying disparity of retinal impressions, so, in monocular vision, a series of motor experiences accompanying accommodation of the lens, is conjoined with a series of optical experiences, due to varying distinctness and diffusion of retinal impressions" (*Manual*, pp 392-393). We see, then, that sight alone is not quite incompetent to give us a knowledge of distance. In a certain sense, we may say, with Stout, that "the eye has means of perceiving the third dimension which are denied to touch. This arises from the fact that the eye is stimulated by objects at a distance from the body." (*Ibid.*, p. 381.) The sweep

From these indications it is clear that Sight has its own means of signifying distance—and that even in a more "scale"

and range of vision enable us, to a certain extent, to form an idea of the immensity of Space.

We must remember, however, that our estimate of the real material world depends mainly on the experiences of active touch. Visual impressions are not only highly variable with distance, position, and many other subjective and objective conditions, but they may sometimes be wanting altogether (as in the case of darkness or blindness). Hence all the measures which we employ to definitely estimate surface or depth are tactful (such as a foot, a cubit, or a metre); and visual, auditory, and olfactory estimates soon become subsidiary processes, suggesting the more reliable tactful estimate. This might have lent some colour to the Berkeleyan view that only touch gives a direct knowledge of distance, while the other senses merely furnish auxiliary signs. "The spatial perception", observes Stout, "is throughout its development determined by practical interest. The object of perception is always ultimately *real* extension, figure, and magnitude, but these are much more directly and accurately revealed in tactful experience than in visual. Variations of the visual experience are constantly occurring, which imply no variations in the size, figure, and position of the objects seen, but only variations in the position of the body or eyes of the observer. Since what we are interested in is the real space-determinations of the objects themselves, we tend to ignore these variations in their relation to the nature of the object. So far as they have meaning for us, they

Though sight may thus indicate distance, yet it is of subordinate moment, since visual signs are highly variable and uncertain in this respect. Hence we ordinarily depend on active touch for a reliable measure of distance.

Herein lies the truth of the Berkeleyan view.

condition the perception of the relative position of the object to the body of the observer". (*Manual*, p. 380)

Auditory and Olfactory Perception of Space

The difference between massive and acute sensations is present, more or less, in every sense.

In the case of Hearing the semicircular canals are believed to convey an idea of space in three dimensions.

Local character and mobility are imperfectly illustrated in Hearing and Smell

(C) *Auditory and Olfactory Perception of Space*

We have already seen that the difference between massive and acute sensation is present, more or less, in every sense. There is difference, for example, between the roar of a multitude and the shout of an individual, the grave sound of an organ and the shrill note of a flute, the fragrance of a garden and the smell of a single flower. It is said that the semicircular canals of the ear are "fitted to form a notion of space in three dimensions." According to a report by M. Elie de Cyon on the Semicircular Canals and the Sense of Space (*Vide Mind*, October, 1878)—"(1) Through the semicircular canals we obtain a series of unconscious sensations bearing on the position of the head in space; and (2) each canal has a strictly determinate relation to one of the dimensions of space" The two important conditions for the development of the idea of space, *viz.*, (1) local character and (2) movement, are also illustrated, though in an imperfect form, in the case of Hearing and Smell. Local character appears in the form of two ears or nostrils, and movement in the form of mobility of the head or sniffing in the case of smell. Difference in the intensity of a sound as perceived by the two ears, modified or not by movement, as well as difference in the intensity of a smell, affected or not by sniffing, indicates the direction

and distance of objects. Similarly, difference in the timbre of a sound, brought about by the dropping out of the weaker partial tones with the increase of distance, or variation in the purity of smell, which is affected by admixture as distance increases, helps us also in determining distance.

Though experience thus improves the idea of space in all its details, yet we should not overlook the native provision in our constitution for the apprehension of space. This primitive idea is more or less perfect in the different grades of animal life. Generally speaking, we may say that it is more perfect in lower animals than in man. The movement of a calf, a bird, an insect, or a fish, as soon as it is ushered into the world, bespeaks an instinct not to be found in man. Sir Joseph Banks, for example, mentions that he saw "a chicken catch at a fly while the shell stuck in its tail." Such unerring determination of the dimension, direction, and distance of an object has led some to surmise that in lower animals there is a separate organ for the perception of space in all its dimensions. But, whether such an organ is present or not, it seems to be certain that there is an instinctive co-ordination of visual, tactful, and other experiences, without which the ready adjustment of a definite movement to a visual or auditory impression becomes inexplicable. Such an instinctive co-ordination of the experiences of the different senses is also supposed to be present, to a certain extent, in the case of man. It is generally attributed to heredity.

The above account brings out how experience develops the idea of space which is primarily innate.

In lower animals the primitive idea is comparatively more definite and precise than in man,

whose rational nature leaves less to instinct and requires more from experience.

'Acquired Perception' illustrates prominently the influence of experience and association,

though the appropriateness of the expression may be called in question

and the facility with which the different sense-experiences become connected together favours such a supposition. But we must remember that it is not so perfect in man, since his intelligence precludes the necessity of an equal share of instinct. As nature is frugal in her operation, man is required to achieve by experience what is given as an instinct to animals. Hence the necessity of experience to perfect by association what would otherwise remain vague and imperfect. The very mistake, which Reid made in supposing that the beat of his own heart was due to tapping at the door, brings out the force of such association due to combined and repeated experience (*Tide* § 13). What we call "acquired perception" illustrates but forcibly the suggestion of one kind of sense-experience by another. If, for example, the visual or auditory signs of distance suggest by association the tactful, or the taste of a sample of tea suggests by association the place where it is grown, then we regard these as cases of acquired perception, since the comparatively less important experience suggests the more important. As, however, the test of importance varies from case to case and perception always involves an associative element, we may say with Prof James that "every perception is an acquired perception." (*Text-Book*, p 313) The perception of space, then, though having an instinctive basis, is to a great extent improved and rendered definite by the experiences of the different senses.

§ 8 Resistance or Impenetrability.

Our conception of a material object is that it is extended and also endowed with resistance or energy. We have seen how the idea of space develops in its various forms Let us now try to understand how we acquire an idea of resistance or impenetrability. It is gained through active touch . impeded or thwarted movement lies at the root of this conception. When our movement is resisted from without, we experience muscular sensations supplemented by sensations of pressure ; the greater the energy put forth, the intenser the feeling of pressure These experiences suggest that the object resisting our movement is endowed with an energy opposing our own. When two limbs are opposed to each other, we experience muscular sensations as well as sensations of pressure in both the limbs. When another person resists our movement, we attribute to him experiences and energies like what we experience ourselves. When an inanimate object opposes our movement, we attribute the opposition to an energy analogous to our own.

Hardness, Softness, Rigidity, Fluidity, Elasticity, and Non-elasticity. Ideas of these are closely connected with the idea of Resistance. When an object does not yield to movement, we infer it to be hard . in other words, when increase in expenditure of energy is followed by increase of pressure, the object is inferred to be hard. When, on the other hand, increase of energy is followed by movement, pressure remaining the same or becoming less, we infer the object to be soft. When

The idea of resistance or impenetrability, which constitutes the essence of matter, is acquired from active touch or thwarted movement.

The ideas of hardness, softness, rigidity, fluidity, and elasticity are formed by reference to sensations of movement, pressure, and contact.

an object yields easily to muscular effort and we can freely move our limb in it in any direction we like, there being a, more or less, massive and spreading sensation of contact throughout, we judge the object to be fluid. An elastic body, though yielding to effort, keeps up its resistance which continues to be much the same even when the effort is relaxed. A rigid body, on the other hand, is one which never yields, that is, muscular effort in such a case is not followed by movement but followed by increased sensation of pressure

The idea of weight is derived mainly from resistance to the force of gravity

The idea of weight is closely connected with the idea of resistance. In fact, what we call weight is but our resistance to gravity. What we ordinarily call resistance is illustrated when we overcome force in any other direction than the force of gravitation, while weight is ordinarily used to indicate the measure of energy needed to overcome the latter force. The perception of weight is either passive or active, according as it is determined simply by the intensity of pressure exerted on a part of our body (say, the hand) which rests on something, or it is determined also to a great extent by a sensation of strain, due to muscular exertion, as in lifting or supporting a material body.

Smoothness or roughness is known by equal or unequal pressure in the case of touch, easy or hard

§ 9 Smoothness and Roughness. *Passive Touch* contributes to this idea by the experience of equal or unequal degrees of pressure experienced through different points of a tactual surface. Equal pressure indicates smoothness, while unequal pressure, roughness.

Active Touch suggests roughness when there is an impediment to movement ; when, however, the hand glides easily, we infer a smooth surface. Roughness and smoothness are directly known only through touch. These may be suggested, however, by sight by means of certain visual signs, e.g., the glistening or shining surface of a smooth object.

movement in
the case of
active touch

§ 10. Unity and Plurality of Objects. Passive touch suggests unity when there is no break in tactal sensations ; a gap in tactal experiences suggests plurality. Active touch suggests unity when there is scarcely any resistance to movement, the tactal experience remaining, however, continuous. Sight suggests unity when there is no break in uniform retinal impressions. When there is a break, there is a sign of plurality. It is evident from the foregoing that the idea of a complete contour (boundary) underlies unity.

Sight suggests
smoothness
or roughness
by visual
signs

§ 11. Subjective and Objective Movement. By subjective movement we are to understand the movement of a limb or organ ; by objective movement, the movement of an extra-organic object. These may be known by touch, sight and, to a certain extent, by hearing.

(i) *Tactual.* Subjective movement is recognised by the fact that the direction and the velocity of movement are determined by us and not for us. In the case of contact, there is variation of tactal experience. Objective movement is revealed to active touch by the fact that the direction and velocity of movement are determined

Continuous
tactual or
visual
impression
suggests
unity, while
a break
indicates
plurality

Subjective
movement is
movement of
a limb or
organ, while
objective
movement is
movement of
an extra-
organic
object.

These are
mainly known
through
(i) Touch,

for us and not by us, the tactal experience remaining the same. Passive touch suggests objective movement by variations of tactal experience in respect of local character, coupled with the absence of muscular experience (*e.g.*, when an ant creeps over our body).

(2) Sight,

(2) *Visual* Sight suggests subjective movement by variations of retinal impression, accompanied by muscular sensations resulting from movement, the direction and velocity of which are determined by us. Objective movement is suggested by active sight by the persistence of one and the same retinal impression accompanied by muscular sensations resulting from movement, the direction and velocity of which are determined *for us* and not *by us* (*e.g.*, when we follow a moving light). Passive sight suggests objective movement by variation of retinal image in respect of local character, coupled with the absence of an experience of movement, as when a light crosses the field of vision, the eyes being at rest.

and (3)
Hearing

(3) *Auditory* Subjective movement is recognised by variation in the intensity of a sound, accompanied by muscular sensations connected with movement, the direction and velocity of which are determined by us. Objective movement is mostly recognised by passive hearing. In this case variation in the intensity of a sound is not accompanied by muscular sensations, the latter factor suggesting the absence of subjective movement and thus leading us to explain variation of intensity by reference to objective movement (*e.g.*, when-

we hear from a fixed place the fainter and fainter cries of an animal).

§ 12. Intuition of Objects. Intuition properly means presentation. Presentative or immediate knowledge thus comes within the province of Intuition. This immediate knowledge may be either (1) of *a priori* factors, or (2) of factors present in experience. When we use the expression 'Intuitive school,' we use it in the first sense; and 'the intuition of an object' refers to the second. ('*Vide Chap I, § 8*)

Intuition or immediate knowledge of an object may be gained by any one of the special senses. As, however, the lower senses are characterized by a preponderance of feeling, knowledge of an object is mostly derived by means of the higher senses.

(a) *Tactual Intuition.* Touch supplies us with a direct knowledge of the primary qualities of bodies and enables us to recognise their distance, smoothness, unity, or plurality. These different aspects become associated together by experience, so that when, subsequently, any one of them is presented, the rest are recalled, thus giving us the tactual *perception* of an object. Touch also enables us to distinguish between the different aspects of space, plenum and vacuum, extension and space. *Extension* as a real attribute of material objects derives its reality from its close and inseparable association with resistance, we conceive a resisting object as extended, because we find the two features conjoined in experience.

(b) *Visual Intuition.* Sight being more discri-

Ambiguity of
the term
'Intuition'

Though all the special senses may give us a knowledge of objects, yet the higher senses are specially fitted for it

(a) Touch gives us a comparatively direct knowledge of the peculiar properties of matter

(b) Sight,
being more

representative
and of wider
range, often
suggests these
Properties by
certain signs

minative and of wider range can supply the mind with a rich variety of experiences. Sight, however is more representative than touch and is incompetent to supply us with a direct knowledge of the force-properties of objects. But, as the result of experience, tactual, visual, and other experiences become associated together, so that, in adult life, when a visual impression is present, it suggests the connected experiences, leading to visual perception or intuition of an object.

(c) Hearing
too does the
same

(c) *Auditory Intuition.* Hearing, being deficient in mobility and local character, can give us but an imperfect idea of space, and it cannot furnish the mind with the knowledge of the force-properties of objects. Auditory experiences, however, come to be co-ordinated with the experiences of the other senses and thus suggest them, more or less clearly, by association.

Acquired
perception
implies the
suggestion of
an experience
peculiar to
one sense by
another by
the force of
association

§ 13 Acquired Perception By 'acquired perception' we are to understand the knowledge derived through a particular sense which cannot directly supply it. Perception of distance, for example, is usually regarded as acquired in the case of sight or hearing, the knowledge being directly given by active touch alone. Mansel remarks that the acquired perceptions "are not, properly speaking, given in the sensitive act to which they are supposed to belong, but inferred by the understanding, according to a law of association, from the presence of something else." The inference, he observes, is one which is never consciously performed. It takes place by the laws of habit.

which are based on associations formed very early in life ; and, consequently, in the complex acts of our mature consciousness, the inferred elements are not clearly distinguishable from the data which suggest them. The acquired perceptions of sight may be indicated by the following contrasts between the *presented object*, or that which we actually see, and the *represented object* or that which we appear to see.—

Contrasts
between the
presented and
the repre-
sented object
as involved in
the acquired
perceptions
of sight.

"(1) The presented object (*i.e.*, the image) is on the surface of the retina ; the represented object appears without, and at a greater or less distance from the eye.

(2) The presented object is of such a size as can be contained within the spectator's visual organism, the represented object may be many times larger than his own body.

(3) The presented object is a flat surface, the represented object is a solid body.

(4) The presented object is inverted ; the represented object is erect.

(5) The presented object is double, there being a distinct image on the retina of each eye, the represented object is generally single, the two images being in normal vision united in the notion of one body."

To refer to the first of these instances, namely, to the visual perception of distance. We know that distance, as perceived by active touch, is suggested by the convexity of the eye-ball, the convergence of the eyes, the variation of apparent magnitude, haziness or distinctness of impression,

As distance is
definitely
understood
by reference
to the
experiences
of active
touch, sight
is believed to
suggest

distance by
certain signs

etc. These become signs of distance as we grow older. They readily, and, as it were, spontaneously suggest distance. Through repetition and preponderance of interest our attention is more readily directed to the end than to the means we overlook the signs, and distance seems to be definitely presented to sight. And, in the case of insects and worms generally, smell in this respect takes the place of sight. Individuals and species are even identified by smell.

An example
given by
Reid of
acquired
perception of
Hearing

There may be acquired perceptions of other series too. Reid, for example, remarks, "It seems to be by custom that we learn to distinguish both the place of things and their nature by means of their sound, that such a noise is in the street, such another in the room above me, that this is a knock at my door, that a person is walking upstairs—is probably learned 'by experience' I remember that once lying-a-bed and having been put into a fright I heard my own heart beat, but I took it to be one knocking at the door, and arose and opened the door oftener than once, before I discovered that the sound was in my breast."

Perception is
the random
apprehension
of objects as
they are
presented to
the mind,
while obser-
vation is
regulated
perception

✓ § 14. Perception and Observation. The difference between Perception and Observation lies in the fact that while, in the one case, we notice any and every object which comes before the mind, in the other, we view only those which bear on a definite end regulating our cognition. Thus, the astronomer observes the movements of the heavenly bodies, the statesman, the drift of political events, and the scientist, the facts con-

nected with his inquiry in hand, to the exclusion of other events or incidents which may at the time be present before his mind. Observation may, therefore, be described as regulated perception, and Perception as but indiscriminate apprehension of objects crossing the field of mental vision. Observation thus implies (1) that we throw a special degree of attention into the perceptual process, (2) that perception is guided or regulated by some end in view, (3) that the mind is open to conviction, and not prejudiced in favour of this or that view of a question, and (4) that there is a jealous regard for truth and an exclusion of irrelevant factors.

Analysis of
observation.

§ 15. Exercises.

1 Distinguish between (1) Sensation and Perception, (2) Local Character and Localisation, (3) Space and Extension.

2 Analyse the Perceptual Process and show that it is much more an act of mind than Sensation.

3 What are the special channels of Perception? Why are they so called? Estimate their relative importance.

4 Trace the genesis of the idea of Space.

5 How is the idea of Materiality formed? Indicate its relation to the idea of Space.

6. Discuss the character of the perception of Distance.

7 How do we determine the unity or plurality of objects, subjective or objective movement? Account for the visual perception of Solidity.

8 What do you mean by Observation? Analyse the process involved in it.

9 What do you understand by Intuition? Explain the process involved in the intuition of an object.

10 What is meant by Acquired Perception Give some examples of the acquired perceptions of Sight and Hearing

11. In what senses has the term 'perception' been used? Distinguish between external and internal perception

12. Explain the proposition that all Perception is a process of Classification

13 Analyse the perceptual process and illustrate your answer by reference to an object present before you

14 Distinguish between the Primary and Secondary Qualities of Body What do you understand by Secondary-Primary Qualities?

15 Dr. Johnson tried to refute idealism by kicking his foot against a stone Analyse the process by which he came to know that (1) he kicked (2) his foot against (3) a stone

16 Indicate the psychological and physiological conditions of Perception Is Perception connected in any way with Imagination and Thought?

17 Show that Perception is a presentative-representative process How does Perception differ from Inference?

18. How do we perceive Hardness and Softness, Solidity and Liquidity? How is Elasticity determined?

19 What is the ground of the distinction between Roughness and Smoothness? Does Sight in any way contribute to this distinction?

20 Explain the bearing of the doctrine of 'Local Signs' upon the psychological theory of Extension

21 Explain and examine the different views as to the origin of the idea of Space

22 In estimating Distance, discriminate exactly between the element contributed by the Eye and the element contributed by Association.

23 Have we any direct perception of Direction and Distance? and if so, to what extent and through what senses?

24 Examine the following —"Our senses give us a direct and distinct notion of the primary qualities, and

inform us what they are in themselves. But of the secondary qualities, our senses give us only a relative and obscure notion."

25 Determine the *object* of Perception. Analyse in detail the perceptive process involved in the experience, 'I perceive the sun' Am I conscious of the 'sun' perceived?

26 Distinguish between subjective and objective movement How are they determined?

DIVISION II.

REPRESENTATIVE COGNITION.

CHAPTER X.

✓ MEMORY

Representation implies the revival, in the form of an image, of what was experienced before

It is illustrated in Memory and Imagination. Memory is the reproduction of past experience in the same form, while Imagination involves modification of revived elements.

§ 1 Representation and Its Forms.
Representation implies the revival of a past experience in the form of an image. If, in Perception, a sense-impression or an aggregate of sense-impressions gives us an immediate knowledge of an object, in Representation no such impression assures us of its presence. In thinking of an absent friend, in forecasting the experiences of a coming holiday, or in forming the picture of a historical or mythological incident, we exercise the representative power of the mind. It is illustrated in two principal forms known as Memory and Imagination. In the one case, the revived image is a more or less faithful copy of the past experience, while, in the other, it involves a modification of what was experienced before. Both are forms of Imagination, in the sense that an image or representation is present in each case, but Memory illustrates the reproductive, while what is ordinarily called Imagination illustrates the productive or constructive form. Of these two forms, Memory is evidently the earlier, as, in Constructive Imagination, the image-elements re-

vived by Memory are but combined or separated to form a new idea

The second stage in the development of Intelligence is Memory. It is not meant by this that Perception (the first stage of Intelligence) is complete without memory or representation. A rudiment of memory is involved even in perception.

But we classify mental operations according to their predominant characteristics as compounds, and not according to their separate natures as simples. The predominant feature of perception is representative, while the predominant feature of memory is representative; and presentation leads on to representation. Hence perception is regarded as the first stage of intellectual exercise and memory, the second.

§ 2 Character of Memory - Memory, as a distinct revival of some past experience, involves (1) Retention, (2) Reproduction, (3) Recognition, and (4) Localization. Let us say a word on each of these factors.

A rudiment of Memory is, no doubt, present in Perception; but its presentative factor gives it its peculiar character

Memory involves

(1) *Retention* The very possibility of reproducing a past experience requires that it must continue to be present in the mind in a subconscious or unconscious form. I can never remember, for example, that a gentleman visited me yesterday unless I retain his impression in the interval. Retention thus illustrates the conservative power of the mind intervening between actual experience and revival. In this stage, our past experiences lie below the threshold of consciousness, and their presence is proved only

(1) Retention or conserva-tion,

by subsequent revival. The *physiological condition of retention* is the continuance in a weaker form of the cerebral current originally excited by a stimulus. The plasticity of the brain does not mean that a modification produced is readily effaced or erased. On the contrary, a physiological disposition, once set up, has a natural tendency to continue, unless prevented by counteracting circumstances. It was once believed that one compartment of the brain was used in perceiving, while quite a different compartment was used in retaining facts. But the identity of the centres of perception and retention is proved by the close affinity of their products. As Bain observes, "The tendency of the idea of an action to become the action, shows that the idea is already the fact in a weaker form. But if so, it must be performing the same nervous rounds, or occupying the same circles of the brain, in both states."

(2) Reproduction or revival,

(2) *Reproduction.* Memory involves also the power of depicting in imagination what was once experienced. If, in the stage of retention, a fact lies below the threshold of consciousness, in the stage of reproduction, it is raised above the threshold. Thus, we may realize, on any occasion, the sights or sounds, the agreeable or disagreeable feelings which we once experienced. The *physiological condition of reproduction* is the re-excitation of the cerebral process which persists in a weaker form after the original experience.

Pecogni

tion on,

(3) *Recognition* Mere reproduction without recognition can scarcely constitute Memory. Re-

cognition, as we have seen, is but a rudimentary form of assimilation. (*Vide* Chap. VIII, § 4.) If an image be present in our mind and it appear to be strange, instead of familiar, it can never represent Memory. Memory always implies a consciousness of the previous experience of the object represented by the present image. The *physiological condition of recognition* is evidently more complex than that of mere reproduction. It involves also the re-excitation of connected cerebral processes tending to determine the character of the image present in the mind. To recognise an image as that of a friend is to be conscious of all those features which bring about an identification, involving a coalescence of the several image-elements in a single complex idea.

(4) *Localisation* Even Recognition is not adequate to constitute Memory. Memory involves not merely recognition but also the reference of the present image to its place in the time-scale of past experience. To be simply conscious of an image as familiar is merely to take a step towards memory proper. It implies further the additional consciousness (more or less clear) of the image as representing some past experience. And it may be mentioned in this connection that memory involves at times reference not merely to the past time-series, but also to the space-series as determined by previous experience, as when we remember having seen a person on a particular date at a particular place, or having read a poem on a certain page of a book, but the essential feature is the

and (4)
Localization
or reference
to a definite
point of time.

temporal, and not the spatial, localisation. The *physiological ground of localisation* is the re-excitation of all those central nerve-processes which, by the different degrees of their intensity and the special forms of their connection, contribute to a knowledge of the relative position of an image in the history of personal experience.

All these factors of Memory are closely connected with one another betraying the organic unity of the mind

It may be mentioned in this connection that all these factors of memory are closely connected with one another, so that when any one of them is present the rest also are found in a more or less prominent form. It merely indicates the organic unity of our mental constitution. Memory may, accordingly, be said to be the ability of retaining, reproducing, and recognising the past experiences in the same form and order in which they actually took place.

Three principal forms :

(1) The most rudimentary form is the continuance of an impression in the form of an image after the stimulus is withdrawn (After-percepts or after-sensations)

§ 3 Forms of Memory. Memory is illustrated in three prominent forms —

(1) The most rudimentary form of memory is that in which an image continues in the mind even after the disappearance of the percept, for example, when we continue to see a light even after it disappears from view. Hence such images are known as *after-images*. As Prof Bain very aptly points out, this form of memory has its analogue even in inanimate nature (*e.g.*, the agitation of the surface of a pool of water continues even after the stone causing the agitation has sunk). And the *physiological explanation* of these after-images is to be found in the continuance of the nervous agitation set up by the object. Thus, the

reverberation of thunder lingers, as it were, in the ear even after the atmospheric discharge, and there seems to be a ring of light when a bright object is rapidly whirled round by means of a string. The continuity of impression in the latter case is due to the overlapping of successive impressions corresponding to the successive positions of the object. The after-images* have, accordingly, been sometimes called *after-percepts* or even *after-sensations*.

"Music, when soft voices die,
Vibrates in the memory—
Odours, when sweet violets sicken,
Live within the sense they quicken"

(2) The next higher form of memory is illustrated when some recent impression every now and then recurs to the mind, e.g., when a boy messenger on an errand tarries on the way to attend to something else, but at the same time remembers every now and then the message he has to convey. Similarly, after prolonged reading or microscopic examination, images of the objects observed float

(2) The next higher form is the recurrence of the image of a recent impression every now and then

(Temporary or recurrent images)

* After-images have been distinguished into positive and negative a *positive after-image* has the same specific quality as that of the percept, while a *negative after image* has a different specific quality. Thus, if we look at a bright object for a very short time, say $\frac{1}{4}$ of a second, we continue to see it in much the same character even when it disappears, but if we look intently at the object for a comparatively longer time, then the image appears as black, instead of bright. This change in the character of the image is supposed to be due to a fatigue or exhaustion of the nerves exercised at the time. In the case of vision, the negative after-images have complementary colours, due perhaps to the activity of allied nerve-fibres when their companions are exhausted. In the case of taste, likewise, we find that a very bitter taste often gives rise to the negative after-image of a taste which is sweetish.

We should note here a distinction sometimes drawn between an *after-image* and a *primary memory-image*. The latter, like the

before the eyes, every now and then, for sometime
 These images are known as *temporary* or *recurrent images* and differ from positive after-images in not being continuous with the primary experiences but having brief periods of intermission. This is, so to speak, an intermediate stage between the rudimentary form of memory explained in the last paragraph and the more advanced form to be considered in the next. It prepares the way for the development of the latter.

(3) The most advanced form is the revival of an experience after an interval

(Memory-images)

(3) The most advanced form of memory is illustrated when an experience is recalled after an interval, for example, when we remember just now what we did yesterday or sometime back. This form of memory is peculiar to the animal constitution and found prominently in man. The images that are revived in this way are, therefore, called *memory images*, as distinguished from after-images or temporary images.

"Oft in the stilly night
 Ere slumber's chain has bound me,
 Fond Memory brings the light
 Of other days around me

former, is a peculiarly vivid representation of what has just been experienced, but, while the latter is due to a voluntary fixation of attention on what has just happened, thereby rendering a representation of it specially vivid and distinct, the former is not due to any such voluntary effort, the image or rather the after-sensation being but a continuation of a recent impression. Moreover, primary memory-images do not undergo such modifications as are illustrated in negative after-images, and, unlike after-images, which seem to float before our mind on a flat surface detached from their surroundings, the primary memory-images appear as representations of solid objects actually perceived. These primary memory-images are allied to memory-images, explained below, which are ideal in character.

The smiles, the tears
 Of boyhood's years,
 The words of love then spoken ;
 The eyes that shone,
 Now dimm'd and gone,
 The cheerful hearts now broken !"

§ 4. Conditions of Revival The conditions of Revival or Reproduction are (I) Retention and (II) Association or Suggestion. The one may be described as the *pre-disposing* cause; while the other, as the *exciting* cause. In order to remember a past experience, it is not only necessary that we must retain it, but it is further necessary that there must be a present circumstance, associated with it, which is likely to suggest its revival.

The Conditions of Revival are (I) Retention and (II) Association.

I. Retention is, in every case, determined by *depth of impression* which depends (1) partly on objective and (2) partly on subjective conditions.

Let us notice these conditions separately.

(1) The *objective conditions*, which contribute to the vividness and distinctness of an impression, are its (a) intensity, (b) quality, (c) duration, and (d) extent, as well as (e) the frequency of its repetition. (a) A powerful stimulus which strikes a sense with sufficient energy (*e.g.*, the report of a gun, the flash of lightning) makes a more deep impression than one which is feeble or faint (*e.g.*, the ticking of a clock or the twinkling of a star). (b) Similarly, the attractive feature in an object (such as a rich hue or sweet tone) often serves to produce a vivid impression. Likewise, (c) a percept which persists (*e.g.*, a person waiting at the door) or (d) one which

I Retention is determined by depth of impression which depends on (1) objective and (2) subjective conditions

(1) The objective conditions are (a) the intensity, (b) quality, (c) duration, (d) extent, and (e) frequency of repetition

is of good dimensions (*e.g.*, an elephant or a mountain) generally produces a better impression than one which is momentary (*e.g.*, the flight of a bird) or of very small dimensions (*e.g.*, an ant or a fly). But we should remember that seldom do we retain impressions well unless they are repeated several times. It is for this reason that we do not remember many things which we see on the way, as they are but seldom repeated—though the same bridge or the same man seen on the same spot several times makes a lasting impression on the mind. Every student knows the value of revision of a course of study for examination purposes. We should remember, however, that the frequency of repetition is of greater importance in this respect than the mere number of impressions. An experience repeated in quick succession four or five times thus produces a more durable impression than one occurring a dozen times at longer intervals.

(2) The subjective conditions are
(a) favourable conditions of mind and body and
(b) attention

(2) The *subjective conditions* of retention are (a) favourable psycho physical mood and (b) attention. Though these two conditions are very closely connected, yet the one does not necessarily imply the other. We may, for example, with some difficulty put forth attention when we are tired or fatigued. Generally, however, we may say that (a) the freshness of the mind and of the body are favourable to a lasting impression. A student thus remembers better what he prepares in the morning after repose than what he reads at night after the whole day's work. (b) Attention, as we

have read, tends to make an impression distinct and vivid. So what we watch with attention we remember better than what we notice quite in a cursory way. A lesson learnt by concentration is thus better retained than one read in a listless manner. If we take into account attention and repetition as conditions of retention, we find the truth to be that the quantity of attention, whether concentrated at one time or distributed over several points of time, always determines the retention of an impression.

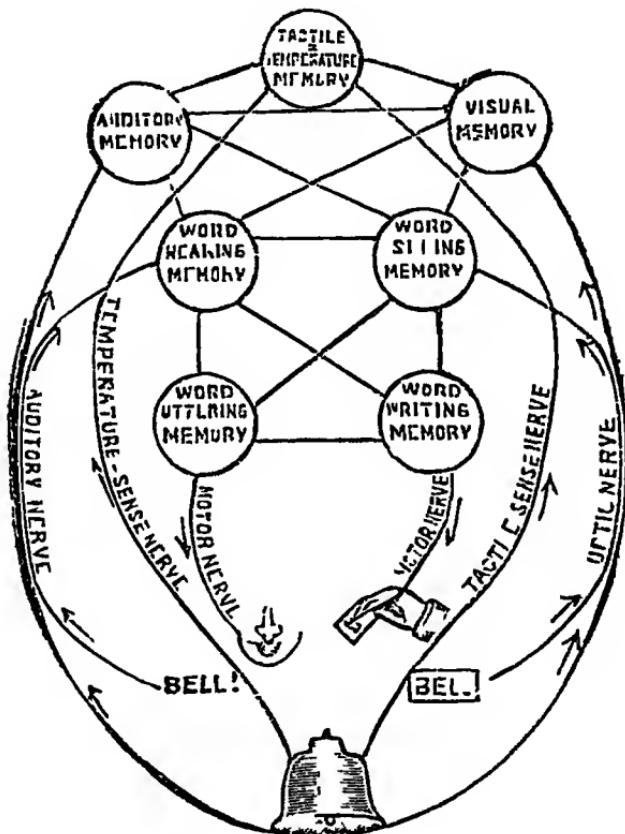
II. In order to reproduce or recollect a past experience a further condition is necessary in the shape of a suggestive circumstance or association. We retain, for example, many things just now; but we remember only those that are suggested by some present experience by contiguity, similarity, or contrast. Association is thus described as the exciting condition of memory.

II A suggestive circumstance helping the revival of what is retained by some bond of association

The physiological conditions of revival are those of retention and association. We have seen that the physical basis of retention is the continuance in a weaker form of the nerve-processes originally excited by the percept. And the physiological explanation of association is to be found in the establishment of certain paths of nervous connection among the centres exercised together. As several sensory and motor centres are often exercised together or in close succession to meet the requirements of complex experience, very intricate paths of nervous discharge are established among the different centres of the brain. The

The physiological conditions of revival are those of retention and association

following diagram, modified from Charcot, illustrates how the cerebral centres and association fibres help the revival of the different features of even a single object, say, a bell



(a) The psychological explanation of the process of revival is that a potential mental mood is converted into an actual by the intensification of consciousness; e.g., by the direction of attention on an object which is just above threshold

§ 5 Process of Revival. The process of revival may be explained (a) psychologically or (b) physiologically

(a) The psychological explanation is that the image retained lies in the subconscious region before it is reproduced. By the direction of attention the image is brought above the threshold of consciousness, and thus we recollect it. This direction

of attention to the image is, of course, conditioned by appropriate suggestive circumstances.

(b) The physiological explanation is that the retention of an impression implies the continuance in a weaker form of the nerve-current originally excited by it. When this (weak) nervous modification is re-intensified by some suggestive circumstance, we remember the past experience.

of consciousness

(b) The physiological explanation is that a nervous trace is re-intensified

Points of Difference between Percepts and Images

§ 6 Points of Difference between Percepts and Images. (1) Percepts are peripherally excited, while images are centrally excited, in the one case, the exciting cause is a sensation which enters into perception, while in the other, the exciting cause is an impression distinct from the thing recalled.

(1) Percepts are peripherally excited, while images are centrally excited

✓(2) Percepts are, therefore, generally more vivid and distinct than images.

(2) Percepts are more vivid and distinct than images

(3) A percept is presentative-representative, while an image is wholly representative.

(3) Percepts are presentative-representative, while images are representative

(4) Percepts are comparatively steady, continuing as long as the objects affect the mind images, on the other hand, are comparatively unsteady, being now vivid and now obscure according as attention is directed to or withdrawn from them velvet of percepts have fixed position in a fixed space in front of us. Images are more fluctuating and are not actually perceived in space

(4) Percepts are comparatively steady, while images are unsteady

(5) Percepts are affected by the movements of our sense-organs, but images are independent of them.

(5) Percepts are affected by movement, while images not so.

(6) It follows from (5) that muscular sensations are prominently involved in percepts, while they are not so in images.

(6) Muscular sensations are prominently involved in percepts, but not so in images.

(7) Percepts appeal to different senses at a time, while images are fragmentary in character

(7) Percepts involve a reference to concrete objects, which generally appeal to several senses at a time, while images are more or less abstract in character, being representations of some features, with but little reference to their natural concomitants. This is called by Prof Stout the fragmentary character of images "The sensory elements revived in the image are cut off from their sensational context and appear in detachment" (*Manual of Psychology*, p 415)

The difference between percepts and images has a biological significance

It may be mentioned in this connection that these marked features of difference between percepts and images have a biological significance. The due regulation of life implies that we should behave differently when influenced by percepts and images. If, for example, an individual reacts upon an image quite in the same way as upon a percept, he is taken to be insane. One who talks to his fancy as to a friend, or strikes at a vision as much as at an enemy is evidently beyond the bounds of sanity.

Percepts and images interact, since images are but revivals of percepts, and percepts too are easily identified and apprehended by pre-existent images in the mind

✓ § 7 Interaction between Percepts and Images. There is a double relation between percepts and images.—

✓ (1) Percepts influence images, in as much as the latter are but revivals of the former. Our images are distinct or vivid according as the percepts are so.

✓ (2) But images in their turn influence percepts. This is illustrated in two ways — (a) In the recognition of an object the image of the past impression combines with the present, leading to identification. (b) In expectant attention the representation of a future experience expedites its

perception. What is called pre-perception really means the modification of a percept by an image. Perception here is facilitated by expectant attention when we have previously in our mind the image or representation of something expected, its perception is, to a great extent, expedited. It should be remembered, however, that the influence of an image on a percept is healthy only so long as a balance is maintained between the presentative and representative faculties. An undue influence of an image on a percept would give rise to an Illusion,* as when a frightened man takes a shadow for a ghost

§ 8 Vividness, Correctness, and Distinctness of Images. (1) An image may be said to be vivid when it is prominently represented in the mind. We have, for example, a vivid image of a journey when we represent it well, that is, with a certain degree of intensity.

Vividness of
an image
implies its
intensity,

(2) The correctness or accuracy of an image depends on its being a faithful representation of actual experience. We have, for instance, a correct or an accurate image of a procession when its several features are faithfully represented in the mind.

correctness &
accuracy
implies its
faithful rep-
resentation ;

(3) By the distinctness of an image we are to understand that its details or parts are well represented in the mind, and clearness implies that the image as a whole is distinguished from other images. (*Vide* Chap. IV, § 4.)

while
distinctness
and clearnes
imply
an adequate
representation
of parts and

* Illusions are to be distinguished from Hallucinations. In illusion there is a basis supplied by fact, while in hallucination there is no such basis. (*Vide* Chap. XI, § 5.)

of the entire image respectively. These different aspects are ordinarily closely connected with one another

A law of association indicates the way in which things, related by similarity, contiguity, or contrast, tend to revive one another

It is to be carefully borne in mind that these different aspects (vividness, etc.) of an image are very closely connected with one another. Usually, though not necessarily, a vivid image is also accurate, distinct, and clear, and *vice versa*.

✓ § 9 Laws of Association We have seen that Reproduction depends on (I) Retention and (II) Suggestion or Association. As the character and conditions of the former have already been explained in § 4, let us now turn our attention to those of the latter. By a Law of Association we are to understand the way in which the suggestive forces work on the traces of past experience in order to revive them in their due form and order. It indicates the invariable tendency of the mind to follow a definite track in the matter of revival. Whenever two or more impressions or ideas are presented together or in close succession, or are characterized by similarity or contrast, they tend to suggest or revive one another.

"Lull'd in the countless chambers of the brain,
Our thoughts are link'd by many a hidden chain,
Awake but one, and lo, what myriads rise!
Each stamps its image as the other flies."

Three forms
of the law

The Law of Association is illustrated in three different forms, viz., (I) Contiguity, (II) Similarity, and (III) Contrast.

→ The several laws of association play a very important part in our mental constitution—especially in the department of memory. The uses made of these laws by the intuitionists and the em-

piricists are not exactly the same. To the empiricist the laws are of invaluable help, in as much as they enable him to explain the diverse faculties and mental products as developments out of sensations. Thus, to the empiricists these laws are universal solvents. A mental product, howsoever unlike the primitive sensations, is shown to be but a development out of them according to the laws of association. The intuitionists, however, dispute the competency of the laws of association to explain the *a priori* factors (*e.g.*, the notions of cause, justice, rectitude). There is a common ground to both, namely, that the laws are of immense value in revival or recollection, but beyond this there is much room for dispute.

Again, it may be pointed out in this connection that the laws of association by themselves can never produce anything new. As in chemical combination there must be an expenditure of energy in order to the production of a compound out of the elements brought together, so, in the department of mind, there must be mental activity underlying the laws of association before they can effect anything. And if mental activity is implied, the mental constitution with its entire outfit of *a priori* factors is involved. This view of the laws of association is quite consistent with the Intuitive Theory. Let us now proceed to explain the three principal laws of association and their different forms one after another.

§ 10 Meaning and Conditions of the Law of Contiguity. The law implies that pres-

To empiricists the laws of association are universal solvents,

while, to intuitionists, they are of value only in suggesting revival

These laws, without mental agency, cannot create anything new

I The Law of Contiguity implies that

phenomena occurring together or in close succession tend to revive one another

entations happening together or in close succession tend to suggest or revive one another. Thus, if we find the sun to be always bright, lightning uniformly followed by thunder, a word invariably used in a certain sense, sugar always tasting sweet, then we naturally come to associate the one with the other, so that subsequently whenever we notice the one we are inevitably led to think of the other. The essential feature of contiguity is that the facts or phenomena associated must be contiguous or proximate in time or space;

The closer the connection in space or time, the firmer the contiguous bond

and the closer the connection, the firmer the contiguous bond. As, in the case of this association, the different aspects or qualities become inseparably combined in the mind, it is often known as

Contiguous Integration indicates the mental unification of qualities or features experienced together or in close succession

Contiguous Integration Thus, the different qualities of orange, when experienced together or in close succession, become mentally unified, so that, if any one of them is afterwards presented to the mind, the other associated features are recalled as forming parts of one whole. In fact, there is an inevitable tendency on the part of the mind to complete the circle of thought, to bring back in idea all those elements that were conjoined with the present feature in past experience.

Law of transference, rendering means more prominent and attractive
· the end, times brings it together,

A prominent form of contiguity is illustrated in what is known as the *law of transference*. When a means is invariably associated with a definite end, the interest of the end is transferred to the means, so much so that we may subsequently pursue the means overlooking the end. Thus,

when wishing to enter a room, our attention is directed mostly to turning the handle and pushing the door. It is well illustrated in the love of money. Money by itself is of no value* ; but, owing to its association with several ends, it gradually acquires the interest connected with them, so that a miser is found to forego not merely the pleasures but even the necessities of life for the sake of money. And the peculiar charm of money may be found in three circumstances —(1) It can remove many wants and purchase various forms of pleasure , (2) it can be counted, so that a certain amount of money represents, as it were, the quantity of pleasures it can possibly secure , and (3) it represents a permanent possibility as distinguished from the evanescent actuality of pleasures enjoyed Thus, money comes to stand for power and enjoyment ; so much money, so much power and pleasure in store. To the student another familiar illustration of this law is furnished in the very great importance which he often attaches to the percentage of attendance in a college to qualify him for appearing at an examination, even to the neglect of his studies.

✗ The Conditions of Contiguous Integration are —

(1) *Proximity in Time* The facts associated must be proximate or adjacent in time or space, and, as already remarked, the nearer the relation, the closer the contiguous bond. Thus, simultaneous

* The student may remember in this connection the retreat of Napoleon from Moscow, when he had to throw away gold and silver as burdensome, since they could not be exchanged for provisions

Illustrated in
love of money

*Conditions of
Contiguous
Integration*

(1) Proximity
in time or
space.

impressions are better associated than succeeding ones, and, in the case of successive events, those are better associated between which there is no interval of time

(2) Combining movement of attention, which closely unites

(2) *Combining movement of attention* Merely the presentation of simultaneous or successive facts is not adequate to give rise to a contiguous bond, it is further necessary that the facts associated should be *attended to* together or in close succession. Thus, a combining movement of attention is essential to contiguity. Of the numerous facts which may be presented to the mind, only those are associated which become *connected* by a combining movement of attention.

This combining movement of attention is illustrated in two prominent forms —

(a) successive experiences or

(a) The *transition* of attention determines generally the order of revival. If, for example, several events be attended to in regular succession (*e.g.*, A, B, C, D, etc.), then revival in the *forward* direction would be easier than in a regressive order. And it is also to be borne in mind in this connection that the revival of any member of such a series is conditioned, not merely by the immediately preceding member, but also, to a certain extent at least, by all the other antecedent members taken in their original order.

(b) those that are intently attended to

(b) The *quantity* of attention bestowed determines also the *strength* of the contiguous bond. If, for example, we closely attend to two phenomena in a moment of excitement, they become very closely associated together in our mind. As

already explained, the quantity of attention may either be focussed on particular objects on any occasion, or may be distributed over several objects present before the mind ; and the narrower the area, the greater the effective force

(3) *Repetition.* Frequency of repetition is a condition not merely of the retention of detached impressions but also of the association of presentations happening together or in close succession. It should also be remembered in this connection that frequency of repetition is of greater importance than the mere number of repetitions

It may be mentioned in this connection that uniformity of experience is a powerful source of association. If we perceive two or more things or qualities always together, they become closely associated together in our mind, so much so that it becomes very difficult for us to imagine the one without the rest (e.g., the succession of day and night, liquidity and water, the sun and brightness). This form of association is called inseparable association, though the expression is not quite accurate, since the association may be reversed by opposite experience or even by an effort of imagination.

From the preceding remarks it is evident that the strength of contiguous bond in any case is determined by the following factors.—

(1) The association between two objects is determined by their independent values. If, for example, *A* and *B* be objects associated together, then the one would tend to suggest the other easily when they are both known clearly and distinctly.

(3) Frequency of repetition.

Strength of the contiguous bond in any case is determined by

(1) the independent values of the objects associated,

(2) the connection between them, and

(3) its relative strength

Forms of Contiguity

(1) Spatial,

(2) Temporal,

(3) Qualitative,

(2) Suggestion is also determined by the strength of the contiguous bond between the objects associated. Even when *A* and *B* are clearly known, the one may fail to suggest the other if they are not frequently and prominently presented together or in close succession.

(3) When several objects are presented together or in close succession, the suggestive force is determined by the preponderant interest and relative frequency of a particular conjunction as compared with the rest. If, for example, *A*, *B*, *C*, and *D* are presented together, then *A* may tend to suggest *D* instead of *B* and *C*—if *A* and *D* were presented together oftener or noticed with greater interest.

§ 11. Forms of Contiguity. Contiguity is illustrated in most of the experiences of our life. It is usually found in four forms —

(1) *Spatial Association* Outward objects situated in space are associated together if they are contiguous or adjacent, for example, the Calcutta University building and the Hare School close to it.

(2) *Temporal Association* Events or phenomena happening together or in close succession are associated together by reason of their proximity in time, e.g., a flash of lightning is associated with a peal of thunder by reason of close succession.

(3) *Objective or Qualitative Association* The qualities, adjuncts, and uses of objects are associated together, so that when one of them is presented, the rest are recalled, e.g., the colour and form of an orange suggest its taste and smell, and the appearance of a spade suggests its use.

X

"Those evening bells ! those evening bells !
 How many a tale their music tells
 Of youth, and home, and that sweet time,
 When last I heard their soothing chime !"

(4) *Verbal Association.* The auditory, visual and muscular experiences connected with words are associated with one another and also with the connected ideas, *e.g.*, the word John, when heard, suggests the visual appearance of the written word (in the case of the educated), the combination of vocal muscles (with the connected muscular sensations) necessary to pronounce the word, and also the image of John (*Vide* § 4.) The association of a word with an idea illustrates what is called *ideo-verbal integration*. A word readily and vividly brings back to the mind the associated image or idea.

§ 12. Trains of Representations Seldom do we find but two experiences associated together in life. As a matter of fact, several incidents or objects are associated together, so that if any one of them be presented afterwards, the rest are recalled. The experiences of a day or of a journey bring out the truth of this remark. When several things or phenomena are so associated, they may illustrate, as indicated above, either (a) co-existence, or (b) succession, or (c) a combination of them. In the case of a row of buildings in a street or the arrangement of the furniture of a room, we have an example of the first; in the flow of the seasons or the succession of the routine-work of a day, we have an example of the second;

and
(4) Verbal
Associations.

As a matter of fact, several objects are often associated together by way of (a) co-existence, (b) succession, or (c) a combination of these

and in the incidents of an examination we have an example of the third, their being both co-existence (in the form of, say, a combination of examinees, desks, paper, pen, ink, etc.) and succession (in the form of answering the questions, the examination of papers, and the publication of the result)

It may be mentioned here that we notice an important difference between association due to co-existence and that due to succession. In the case of the former we may freely pass in any direction we like, but in the case of the latter the passage from antecedents to consequents is easier than a movement in the opposite direction. Thus, we may pass in memory from one bench to another in a class room in any order we please but in remembering the alphabet or the lines of a poem we proceed more easily in the forward direction (that is, the direction in which the association has been built up) than in the reverse order.

In the case of co-existence, revival may take place in either direction with equal ease, while, in the case of succession, it is easier from antecedent to consequent than in the reverse order.

A series of images closely associated together is known as a train of images or representations

When, owing to uniform succession of events, a series of images becomes closely associated together, we have what is called a *Train of Images* or *Representations*. And when such a series, by frequent repetition, becomes consolidated, we pass mechanically, as it were, from one member to another, if the start is once given. Our habitual life illustrates such a train in a prominent form. And we have already seen that the revival of any particular member of a series is really the result of the cumulative influence of all the preceding members and not the outcome of the suggestive force of the immediately preceding member alone. Thus, we remember a

line of a poem not merely with the help of the prior line but with the help of all the preceding lines.

§ 13. Composite Trains When several *concurrent* trains of representation are associated together, we find a composite train illustrated. In such a case a member tends to suggest not merely the other members of the same train but also the associated members of the other trains. For example, in the case of a dramatic performance, the dialogue of certain actors may be associated with the preceding and succeeding dialogues as well as with the acting or movement and the scenes presented side by side. The composite train is further illustrated in *motor succession* (*e.g.*, in walking or writing). In such cases the representation of a movement may suggest the contraction and relaxation of the appropriate muscles required for its actual performance and also the connected muscular sensation, and these in their turn suggest the next movement, and so on.

It should be remembered here that, in the case of motor succession, there are often intervening sensory factors (*e.g.*, muscular, tactful, visual, or auditory sensations). In walking, for example, the succession of movements is aided by a succession of sensations of contact of the feet with the ground; in writing, the succession is aided by a series of visual impressions; and in speaking, it is aided by a series of auditory sensations. The presence of these sensory factors is evidenced by the difficulty felt in walking, writing, or reading, when not aided.

A composite train implies the concurrence of several trains

It is illustrated in motor succession,

in which sensory factors often intervene.

by visual or auditory sensations, though even in such cases there are other sensory elements in the form of tactal or muscular sensations which regulate the motor series. We all know the difficulty of walking or writing in the dark, or of speaking with the ears stopped.

Language has visual, auditory, and muscular aspects together with the aspect of thought or meaning

Any one of these aspects tends to suggest the rest,

though the association of symbol with meaning is specially close, constituting what is called Ideo-verbal Integration Ideo-verbal series.

§ 14. Verbal Association. Language has various aspects—the aspect of thought and the aspect of expression—the visual aspect, the auditory and the muscular aspect (vocal and, in the case of the educated, manual). These different aspects are associated together. The passive aspect (the sound or sight of a word) often suggests the active aspect (vocal or manual) as well as the ideal aspect. The sound of the word 'man,' for example, suggests the combination of vocal muscles necessary to utter the word, the written symbol 'man' (in the case of the educated), and also the movement of the hand necessary to write the word. But the most important factor in verbal association is the *Ideo-verbal Integration*. Every expression or symbol is associated with its meaning or idea and so it tends to suggest the latter more powerfully than any other aspect. And what is true of words separately is true also in the case of a combination of words or what is called an *Ideo-verbal Series*. Such a series illustrates a composite train. Whenever several words are associated together in an intelligible structure of language (*e.g.*, a sentence or a paragraph), any one aspect of any one member of such a series tends to suggest the rest (*Vide* § 4.).

§ 15. Memory and Expectation. Mem-

ory and Expectation as psychoses are (1) partly similar and (2) partly dissimilar.

(1) *The points of similarity are —*

(a) Both involve a succession of mental experiences, in which we proceed from a presentation to a representation having reference to what we may call absent time.

(b) Both imply a belief in the existence of the corresponding objects or events in time, either past or future.

(c) Both illustrate the suggestive force of contiguity, which leads us from what is present before our mind to what is absent.

(2) *The points of dissimilarity are —*

(a) Memory implies a belief in the *past* existence of the object, while expectation implies belief in *future* existence.

(b) Memory is consequently more definite and distinct, while expectation is comparatively indefinite and vague we cannot represent the unknown future experiences with the same degree of clearness and definiteness as the experiences which we actually had in the past.

(c) Memory is a comparatively passive attitude of the mind, while expectation involves greater activity, exertion, or strain . there is comparative resignation with regard to what is already over , but that which we expect in the future we naturally watch with eagerness and solicitude.

The regret which we often experience with regard to some past experience implies, no doubt, activity on the part of mind , but it may be

(1) *Points of similarity*

Both imply
(a) a succession of mental experiences,

(b) belief in corresponding objects, and

(c) the suggestive force of contiguity.

(2) *Points of difference*

(a) In memory the reference is to the past ; while in expectation, to the future.

(b) Memory is usually more definite and distinct than expectation.

(c) Memory is more a passive mood than expectation.

The regret of memory implies mementary

confusion of
the past with
the present

Expectation
is based on
memory,
since any
forecast of
the future
must be by
reference to
what has
already been
experienced

As memory
and
expectation
involve a
reference to
Time, let us
inquire into
its character
and contents

*Contents of
Time*
It is believed
to be the
underlying
continuum
holding
events and
indicating
their mutual
relations

t is measured
by movement

explained by the fact that, so long as we experience regret, we *momentarily forget* that the experience is over and confound its past existence with its present possibility. Though memory and expectation are thus distinct, yet it is to be remembered that expectation must be grounded on memory, we can never anticipate a future experience but by reference to what we have already experienced. Memory aided by constructive imagination determines expectation.

§ 16 Reference to Time Essential to Memory. As memory and expectation involve a reference to time—past, present and future—an adequate account of Time is essential to the elucidation of these processes. Let us, therefore, explain now the way in which the idea of time is formed and how it colours representations. Before entering, however, into the question of the origin and development of the idea of time, we should know what is really meant by it. We shall, accordingly, confine our attention in this section to the exposition of the *Contents of Time*, and shall trace its psychological history in the two following sections.

Contents of Time Time is taken by us to be the underlying continuum holding all events or phenomena and indicating their mutual relations. It is homogeneous, continuous, and infinite, and it stretches out in one direction or line, what we regard as the continuous flow or series. It is revealed to us clearly by reference to movement which, by universal accord, is regarded as its definite measure, it is conceived as made up of

moments or time-units, infinite in number, which may possibly be occupied by a moving or changing object. successive positions or changes are understood by us by reference to successive moments making up the time-continuum, wherein they lie.

Time, like Space, appears to us in two principal forms, *viz.*, as *duration*, or filled time, and *interval*, or vacant time. *Duration* is illustrated whenever an event or phenomenon occupies time. it may be described as that fundamental quality of events by which they occupy time. Thus, we speak of the duration of a day or night, the duration of life or illness, the duration of our study or waiting for a railway train. Duration implies continuity in one direction, *i.e.*, time-length without any necessary reference to magnitude. *Interval* is represented by the time elapsing between events or occurrences, which are conceived as enduring for a long or a short period of time. It may, however, be mentioned in this connection that 'Duration,' like 'Extension,' has sometimes been used in a generic sense so as to cover both occupied or unoccupied time. We thus speak of the duration of ages or of time as a whole, as we speak of the extension of the universe or of infinite space. The existence of a perfect void or vacant time, like that of empty space, has been disputed by some, who contend that time is always understood by reference to events in it. "Empty time," says Stout, "is only relatively empty, what is absent from it is the special kind of experience which marks its beginning and end.

and assumes
two forms,
viz.,

Duration or
filled time

and interval
or vacant
time

'Duration' in
a generic
sense includes
'Interval.'

There are always other experiences going on, specially of motor and organic kind." (*Manual*, p. 402.)

Time is

(1) homogeneous,

Logical analysis reveals the contents of Time as implying that—

(1) It is homogeneous throughout, so that a moment occupied by one event may as well be occupied by another. We notice, however, one distinguishing feature of time, *viz.*, that diverse events may occupy the same moment of time, though different objects can never occupy the same portion of space. We, accordingly, infer in the case of simultaneous events that they are connected with different places or portions of space, and in the case of successive events that they may be connected with one and the same locality. Similarly, when we keep our attention fixed on one and the same portion of space, we can understand changes or events in it only by reference to successive moments of time, and when we take into account different portions of space we are led to think that changes in them may take place at the same moment of time. Thus, we see that time varying, space may be the same, and space varying, time may be the same.

(2) infinite, extending in one direction,

(2) It extends or stretches in one direction, *viz.*, time-length, which is without any limits. The supposition of any limit of time is self-contradictory, in as much as the limit itself must be conceived as in time; and so the supposed limit would give way, and time would run on without any end.

(3) Besides the relative difference of position or direction among its parts, there is no absolute difference by which one point of time may be distinguished from another. A moment of time, whether past, present, or future, might as well be occupied by one incident as by another. Here, too, we notice a peculiarity of time, as distinct from space, *vis.*, that an event can never move backwards, though it may proceed forwards. In the case of space, an object may move in any direction whatsoever, if there be no external impediment ; but, in the case of time, an event can only advance, it can never recede. The psychological question of the development of our idea of different positions of time, *vis.*, the past, the present, and the future, will be considered in § 18.

and (3)
without any
absolute
difference of
position or
direction
among its
parts

It may be mentioned in this connection that though time, like space, is continuous, yet, owing to stops of attention and variation of experience, phenomena (and so time) appear as discrete. "In the experience of watching empty time flow—'empty' to be taken in a relative sense," writes James "we tell it off in pulses. We say 'now ! now ! now !' or we count 'more ! more ! more !' as we feel it bud. This composition out of units of duration is called the law of time's *discrete flow*. The discreteness is, however, merely due to the fact that our successive acts of *recognition* or *apprehension* of what it is are discrete. The sensation is as continuous as any sensation can be. All continuous sensations are *named* in beats. We notice that a certain finite 'more' of them is passing or already

Though
Time is
continuous,
yet it appears
as discrete by
reference to
the events
which
happen in it
and arrest
our attention.

past. To adopt Hodgson's image, the sensation is the measuring-tape, the perception the dividing-engine which stamps its length. As we listen to a steady sound, we *take it in* in discrete pulses of recognition, calling it successively, 'the same ! the same ! the same !' The case stands no otherwise with time". (*Text-Book*, pp. 282-283.) Arithmetic as a science deals with time regarded as a discrete quantity.

Two extreme views of the origin of the idea of Time
 (I) Empirical
and (II)
Intuitive

(I) The Empirical View appears either (1) as thorough-going Empiricism or (2) as Empiricism modified by Evolution
 (II) The Intuitive View is either (1) idealistic or (2) realistic

As in the case of Space, so in the case of Time, the empirical is the.

§ 17. **Origin of the Idea of Time.** As in the case of Space, so in the case of Time, we find two extreme views with regard to the psychological question of the origin of our idea of it (I) The *Empirical View* is that it is merely an abstraction formed out of successive experiences it is an ideal stuff woven by memory and expectation. This empirical view, again, appears either (1) in the form of *Pure Empiricism*, as determined by the personal experience of every individual, or (2) in the form of *Evolutionary Empiricism*, as qualified by ancestral experience and heredity. (II) The *Intuitive View* is that the idea is inborn in us, though it is perfected by experience This Intuitive View, likewise, appears in either of two forms (1) the *Idealistic Intuitionism* of Kant and (2) the *Realistic Intuitionism* of McCosh and Martineau. (*Cf.* Chap IX, § 6)

The empirical account is open to the objection that succession of events presupposes time and does not explain it, and the difficulty is not lessened by saying that experience is aided by heredity. (*Vide* Chap. IX, § 6.) Even the form of

intuitionism described as '*genetic nativism*' or '*nativism of process*' (as distinguished from '*a priori-ism*' which is called '*nativism of product*') is untenable. According to this view, originally there is not the idea of time but only a mental function which, when exercised upon suitable materials, develops the notion of time. These materials—called 'temporal signs' (coined on the analogy of 'local signs' in the case of space)—may not themselves be temporal, but marked only by qualitative and intensive features. According to Wundt, for example, "feelings of expectation are the qualitative, and sensations of movement the intensive temporal signs of a temporal idea. The idea itself must then be looked upon as a fusion of the two kinds of temporal signs with each other, and with the objective sensations arranged in temporal form." (*Outlines of Psychology*, Eng. Translation, 1897, p. 156.) The 'temporal signs' (like the corresponding 'local signs' in the case of space) merely indicate the features of the process which reveal the temporal relations of ideas: they are the 'conditions' favouring the development of the idea of time. But it may be remarked that these 'temporal signs,' if not implying 'temporality' or time-extensity, can no more help the development of the idea of time than mere 'local signs,' without space-extensity, can develop the idea of space. Temporality as an original time-datum or time-extent must first be furnished to the mind, before any original mental function can develop the time-scheme. Time, like space, is a real attribute of events which runs, whether heeded or not by us.

Even the form of Intuitionism known as 'genetic nativism' cannot explain the origin of the idea of Time

Wundt's view.

Temporal signs, like local signs, can only reveal, but cannot create, the real attributes of things

“For though we sleep, or wake, or roam, or ride ,
Aye fleeth the time , it will no man abide”

The idealistic
form of
Intuitionism
is also
objectionable

The Kantian view of time as a mere mental form without any objective counterpart is at once inconsistent and false. The very fact that the ‘form’ is applicable to the ‘matter’ implies an adaptation between the two. Thus, the realistic form of Intuitionism, affirming the existence of real time, which answers to the native tendency in us to construe events in a temporal scheme, seems to be the eligible view.

Even if we assume the idea of Time as *a priori* and the presentation of a primary time element or temporality, still there is ample room for experience to develop and perfect the idea

The development of the idea of Time involves—

(1) an exercise of memory or the representative faculty,

§ 18. Development of the Idea of Time
Even when we assume that the idea of Time is inborn in us and that time is primarily presented to the mind in the form of temporality or time-extent, yet we find that there is ample room for experience to render the primitive idea and crude perception definite, clear, and complete. To explain the development of the idea of Time through experience we must remember three things —

(1) As the knowledge of space is mainly perceptual, so the knowledge of time is mainly reminiscential. The influence of representation is very prominent here, without which there could only be but a very rudimentary and crude idea of time. Time, as involving duration and succession, is conceived by us mainly by reference to representative elements brought before the mind by memory and expectation. Duration may, no doubt, be presented to the mind in the form of a present experience continuing for a little while, but a clear and adequate idea of it can be formed only by reference

to a prolonged experience realized in memory or expectation. Succession, too, in an explicit form is apprehended only through representation. For the consciousness of succession, successive experiences must be known as successive modifications of one and the same mind. The representation of the past or the future must be by the side of the perception of the present in order to give us a clear idea of succession. Thus, the development of the idea of time depends mainly on the exercise of the representative faculty.

(2) It should be remembered, however, that there must be a perceptual basis—a temporal datum or temporality—in order that the representative faculty may be exercised on it for the elaboration of the idea of time. As time is *sui generis*, it can never be a representative product without a prior presentation of temporality. "Without ideal representation," writes Stout, "there could be no such thing as the definite apprehension of a time-series, having a distinguishable beginning and end, connected by a train of intermediate events, each having its own position in the series determined by its relation to other events which come before and after it. For perceptual consciousness it is evident that time cannot exist in this form. On the other hand, we find in perceptual consciousness those primary experiences on which our developed apprehension of time is ultimately based" (*Manual*, p. 400.) In explaining the development of the idea of time, therefore, we shall have to consider the contribu-

(2) the
perception of
temporality
or time-
datum,

tion of (i) the representative as well as (ii) the representative faculty.

and (3) a prominent exercise of sight and hearing, specially the latter.

(3) The other circumstance to be remembered in this connection is that, though a rudimentary idea of time is furnished to us by all the senses, including the organic sense, yet a clear and adequate idea of it is supplied by sight and hearing and specially the latter. The reason why sight and hearing may be regarded as the special channels of our temporal experience is that they admit of a variety of stimulation in quick succession, so that the traces of earlier experience overlap the later. In the case of touch, no doubt there may be a variety of experience, but the variety is not so great and prominent as to impress upon the mind the idea of succession, and the aspect of duration also often escapes our notice in touch owing to the effects of accommodation and habituation. In explaining the development of the idea of time we shall therefore borrow illustrations chiefly from sight and hearing—and specially from hearing which is more fitted to develop the idea by reason of the comparative insipidity of the auditory impressions themselves. As the idea of Time involves (I) the idea of Duration and (II) the idea of Succession, the development of these two constituent ideas must be traced to explain the development of the idea of Time. To simplify the exposition let us consider them apart, though as a matter of fact, they develop concurrently.

(I) The Idea of Duration

(i) The Perceptual Factor For the develop-

ment of the idea of duration we must suppose the primary experience of time-extent or temporality. As in the case of space we have never an experience of mere length without breadth, so in the case of time we have never a bare experience of protension without simultaneity. "The present," as Stout observes, "is never an indivisible instant, it always has a certain duration which is longer or shorter according to circumstances. On the perceptual level it is longer when conation is obstructed or delayed, and shorter when conation proceeds successfully and easily towards the attainment of its end." (*Manual*, p. 405) As every actual point has some extensity, however small, so every realized present has some duration, however short. The 'sensible present,' like a physical point, should thus be distinguished from the 'abstract present,' corresponding to a mathematical point. "The only fact of our immediate experience," writes James, "is what has been well called 'the specious' present, a sort of saddle-back of time with a certain length of its own, on which we sit perched, and from which we look in two directions into time. The unit of composition of our perception of time is a *duration*, with a bow and a stern, as it were—a rearward- and a forward-looking end. It is only as parts of this *duration-block* that the relation of *succession* of one end to the other is perceived. We do not first feel one end and then feel the other after it, and from the perception of the succession infer an interval of time between, but we seem to feel the interval of time as a whole, with

v
idea of Duration :

(i) The perceptual factor is found in the presentation of brief time-periods or time-extents

Testimonies of Stout

and James

its two ends embedded in it. The experience is from the outset a synthetic datum, not a simple one, and to sensible perception its elements are inseparable, although attention looking back may easily decompose the experience, and distinguish its beginning from its end." (*Text-Book*, pp 280-281.) We have ordinarily a *clear* consciousness of about a second, though the duration-limit may vary to a certain extent "The *longest bit of duration* which we can apprehend at once so as to discriminate it from longer and shorter bits of time would seem (from experiments made for another purpose in Wundt's laboratory) to be about 12 seconds. The *shortest interval* which we can feel as time at all would seem to be $\frac{1}{100}$ of a second. That is, Exner recognized two electric sparks to be successive when the second followed the first at that interval" (James, *Ibid.*, p 281.) The *maximum vague perception of duration* is estimated by James to be about a minute.

Experience develops the first crude and imperfect idea of duration

The amount of drain or renewal of psycho physical energy is a measure of duration. Thus, we ~ it by

Though the primitive temporal datum is of such short duration, yet experience develops the idea to a great extent. We often form a more or less definite idea of comparatively long or short *duration* or *lapse of time* by reference to our psycho-physical experience. Probably the amount of drain or renewal of energy, as determined by continued exercise or rest, is an important measure of duration with us. This is supported by the following facts —

(a) When, for example, we are attending to things, the cumulative effect of the attentional

process enables us approximately to determine duration. The cumulative effect of the earlier stages of any experience materially affects its later stages ; and this cumulative effect varies with the lapse of time. "What measures the lapse of time," says Stout, "is the cumulative effect of the process of attending. When we are listening to a sound, our experience is different at the end of one minute from what it is at the end of two minutes, although the sound itself may not have altered in quality. This experience is unique in kind, and it certainly does not consist in having the parts of the sound-sensation as they successively occur, spread out before us in a sort of duration-line or duration-block." (*Manual*, p. 402.)

effect
of attentional
process,

(b) The organic sensations also contribute materially to our estimate of duration. The contrast between the relatively constant systemic consciousness and the varying impressions supplied by the special senses is felt by us as indicating the durability or continuance of the one as distinguished from the transitoriness of the other. The dim background of *cæsthesia* or *malaise* stands out in marked contrast with the passing sensations of hunger or repletion, cold or heat, light or darkness ; and its relatively longer duration is also felt.

(b) the com-
paratively
durable
organic
sensations,

(c) We may even go further and maintain that our organism itself is generally a good time-keeper, even apart from the consciousness of the above contrast. The change in life-feeling, due to more or less protracted rest or exercise, is often an index to lapse of time. One feels more or

and (c) the
record of the
organism
itself.

less refreshed or exhausted with different periods of rest or exercise, the degree of refreshment or exhaustion thus becomes a more or less accurate measure of duration. I can wake, for example, at a certain time of the night, if only I determine to do so before retiring to bed. And I know persons who can with remarkable precision tell the time of the night, even when roused from sleep*. All these psycho-physical conditions are, no doubt, connected with brain-processes, which thus contribute to our measure of time "Since our maximum *distinct perception* of duration hardly covers more than a dozen seconds," observes James, "we

* If, for example, we represent a particular organic condition as *S* and the associated temporal estimate as *T*, then the organic condition *S*, whenever experienced, would tend to suggest *T*. If waking at that time be represented by *W*, then the process involved in waking at the required time may be symbolized as *S-t-w-W*, where the large letters stand for actual experiences or presentations, and the corresponding small letters for their representations or ideas. The transition from *w* to *W* is due to the rise of *w* above the threshold of consciousness, owing to pre determination. This transition is, no doubt, made easy or difficult by the nature of habit and determination. Moreover, organic sensations may also contribute their share towards the result by strengthening *S*. "The organism," as Stout points out, "goes through recurrent series of regular changes in periods, and the corresponding organic sensations serve as temporal marks or signs" (*Manual*, p. 405). The organic sensations may thus augment the stimulatory force of the suggesting circumstance *S* and thus materially help in bringing about a revival, of *w*. Prof. James mentions "All my life I have been struck by the accuracy with which I will wake at the same *exact minute* night after night, and morning after morning, if only the habit fortuitously begins. The organic registration in me is independent of sleep. After lying in bed a long time awake I suddenly rise without knowing the time, and for days and weeks together will do so at an identical minute by the clock, as if some inward physiological process caused the act by punctually running down" (*Principles of Psychology*, I, p. 623). This may be due in part to organic sensations, and in part to attentional processes. Such rhythmical processes, as heart-beats, breathing, pulses of attention enable us, to a great extent, to measure the lapse of time.

must suppose that *this amount of duration is pictured fairly steadily in each passing instant of consciousness by virtue of some fairly constant feature in the brain-process to which the consciousness is tied. This feature of the brain-process, whatever it be, must be the cause of our perceiving the fact of time at all* The duration thus steadily perceived is hardly more than the "specious present."

(*Text-Book*, pp 285-286.)

(ii) *The Representative Factor* The Representative Faculty, whether reproductive or productive, develops to a great extent the idea of duration. We must remember, however, that, there being no absolute line of separation between perceptual and representative faculties, what we have described above as due to perception often involves also an element of representation. In perception itself a presentative factor is overlaid with representative elements closely connected with it. Whenever we realize a duration beyond what is described by James as the 'specious present,' a representative factor is more or less clearly involved. "The reproduction of an event, *after* it has once completely dropped out of the rearward end of the specious present," says James, "is an entirely different psychic fact from its direct perception in the specious present as a thing immediately past. A creature might be entirely devoid of *reproductive* memory, and yet have the time-sense ; but the latter would be limited, in his case, to the few seconds immediately passing by." (*Ibid*, p. 286.) (a) When, for example, a child

(ii) The representative factor is found in the persistence of an image as distinguished from other momentary experiences.

It is illustrated in

comparatively durable experiences in the midst of those that are variable,

and in anxious expectation.

realizes the duration of a shower as a continuous experience in contrast with other variable experiences at the time—such as flashes of lightning, roars of thunder, etc.—what seems to be a purely presentative estimate of duration really involves representative elements as well what seems to be the bare *perception* of duration involves an exercise of memory as well. (b) The representative factor, however, stands out more clearly when the aspect of duration is forced upon our mind by the persistence of some disagreeable experience. When, for example, a hungry child observes the preparation of his food for sometime, without having the pleasure of taking it, or a passenger waits for a train at a railway station, he has a distinct, and we may also say, an intense, consciousness of duration due to continued disappointment. Here expectant attention, which is repeatedly thwarted, clearly involves a representative factor.

"Oh ! how impatience gains upon the soul
When the long-promis'd hour of joys draws near !
How slow the tardy moments seem to roll !
What spectres rise of inconsistent fear !"

(II) Development of the idea of Succession

(i) The primary temporal datum not merely lasts but also flows.

(II) The Idea of Succession

(i) *The Perceptual Factor.* The idea of succession, as we have seen, involves not merely successive presentations but also the presentation of succession. The primary temporal datum or temporality has some time-extent, however small, with concomitant flow or transience. "Without an immediate change-experience, cognition of change,"

observes Stout, "would be impossible for lack of presentative material. The thought of succession in time must be based on the direct experience of time-transience, as the thought of red colour is based on the corresponding sensation. As the perception or idea of colour-quality is impossible to the blind, so the perception or idea of change would be impossible to a being without the change-sentience." (*Analytic Psychology*, I, p 160.)

The 'specious present,' as James says, has "a rearward and a forward-looking end," and "it is only as parts of this *duration-block* that the relation of *succession* of one end to the other is perceived" (*Text-Book*, p 280)

(ii) *The Representative Factor.* The idea of succession, however, when definitely conceived, involves (a) an idea of the past and (b) an idea of the future, which require an exercise of the representative faculty in the form of memory and expectation. The past, the present, and the future may be said to be represented, as mentioned by St Augustine, in memory, attention, and expectation* To understand the development of these

The testimonies
of Stout

and James

(ii) The representation of time as a uniform series of temporal units involves a reference to the past as well as to the future.

Two circumstances favour the

* "Distinction between past, present, and future," remarks Stout, "can only be apprehended in a rudimentary way at the perceptual level. But there is, even at this level, what we may call a "not yet" consciousness and a "no more" consciousness. The "not yet" consciousness is contained in the prospective attitude of attention—in the pre-adaptation for what is to come which it involves. This "not yet" consciousness is emphasised when conation is delayed or obstructed, as when the dog is kept waiting for its bone. In this experience not only is the present lengthened, but the contrast between present and future is heightened. The "no more" consciousness emerges most distinctly when conation is abruptly disappointed or frustrated. The dog in the fable which lets go its actual bone in order to seize the reflected bone in the water, would have this experience in a marked manner." (*Manual*,

*development of
the idea of
Time*

(1) Present
disagreeable
experience

(2) Con-
sciousness of
succession

(a) There is
an occasion
for the
development
of the idea
of the Past
when an
agreeable
experience is
replaced by a
disagreeable
one

ideas we must remember two things —(1) The temporal aspect of an event attracts our notice when the event itself is unattractive or repulsive Hence a present disagreeable experience is the general condition which favours the development of the idea of time in all its aspects, whether relating to duration or succession (2) For the development of the idea of succession, it is not adequate that events should merely be successive , it is further necessary that the mind should note their succession "Reflection," writes Locke, "upon the train of ideas, which appear one after another in our minds, is that which furnishes us with the idea of succession" (*Essay*, Bk II, Ch XIV, Sec. 3) Let us see now how the ideas of the Past and of the Future develop in the human mind

(a) *The Idea of the Past* In order to the development of the idea of the past, let us imagine an agreeable experience followed by a disagreeable one Imagine a child as listening to sweet music or watching the play of the sunbeam on the wall, when suddenly the music stops, or the sun is hid with cloud In such a case, the child will have

p 406) It may, however, be mentioned that the apprehension of a "no more" or a "not yet" implies the contrast between the present and the absent, which is possible only when a representation is placed by the side of a presentation It seems, therefore, that some exercise of the representative faculty is involved in our notions of the past and the future The bare experience of succession or transition from the rearward- to the forward-looking end of what James calls a duration-block may be attributed to the presentative faculty , but this experience does not imply the consciousness of the past or the future, though it develops out of such experience with the help of representation Prof Stout admits that "with the advent of ideal representation the "no more" and the "not yet" experiences become much more definite." (*Ibid.*)

the disagreeable experience of a lull or the sunless wall after the agreeable experience of music or the golden brilliance of the sunbeam. The contrast is thus noted between the disagreeable 'now' and the agreeable 'not now'; and the contrast is made prominent by the fact that the past experience being agreeable tends to persist and thus brings out the difference between what is over and what abides. As, however, the disagreeable experience is a present reality, the vividness of the impression remains unaffected, while the representation of the agreeable experience gradually declines in intensity. Thus, the difference between the 'now' and the 'not now' would develop into the distinction between the 'now' and the 'no longer'. In this way the idea of the past would develop in the mind of the child, and the idea would be further enriched and deepened by varied and repeated experiences.

(b) *The Idea of the Future.* For the development of the idea of the future, let us imagine a hungry child watching the preparation of food. By reason of prior experience the movements connected with preparation would suggest the prepared food and the pleasure of taking it. The mind would thus pass from the present uninteresting experience of watching the preparation to the agreeable prospect of taking the food. As the child is hungry, he would specially direct his attention to the pleasure of taking the food; and so the anticipated pleasure would grow in intensity. Thus, the difference between the 'now' and the 'not now' would develop into the distinction between the

(b) There is an occasion for the development of the idea of the Future when there is the contrast of a present disagreeable experience with the expectation of one which is agreeable

'now' and the 'not yet'. The more the child waits, the more would he notice the difference between the present disagreeable experience and the not yet realized agreeable experience. In this way the idea of the future would develop which, like the idea of the past, would become more clear and definite by repeated and varied experiences.

Though these ideas involve both presentation and representation, yet their order is believed to be different.

Thus, both in the case of the Past and the Future there is the succession of presentation and representation, though there is a difference in the order of their succession. In the case of the past we think of a representation as preceding a presentation, while in the case of the future we think of a representation as following a presentation. Connected with this difference we also find that the past is determinate and beyond our control, while the future is somewhat indeterminate and, to a certain extent at least, under our control. In the order of development, the idea of the past seems to precede, at least in an implicit and rudimentary form, the idea of the future. An ideal forecast must be based on an ideal retrospect; expectation must be grounded on memory. Professor Stout, however, holds the opposite view. He writes—"On the whole anticipation of the future must be regarded as prior in the order of development to reminiscence of the past. For the primary stimulus to ideational activity comes from practical needs, and these are, in the first instance, concerned with the future. Given a present urgency in the way of hunger or thirst, the primary demand made upon ideational activity is for the devising of

Expectation
must be
grounded on
memory
Prof. Stout
thinks other-
wise,

means to procure food or drink. It is thus called on to follow out a train of ideas representing the successive links connecting the present state of need with a future state of satisfaction. Trains of ideas representing previous sequences of events will at first be called into play mainly by the need for data derived from the past to use in providing for the future." (*Manual*, pp 515-516.) The element of truth contained in these remarks is that often our attention is intently and explicitly directed to the future, instead of to the past ; but, even in such cases, an implicit and spontaneous reference to the contents of memory must be involved in order that there may be any meaning in expectation.

We see, then, that the development of the idea of Time depends partly on organic and partly on attentional processes, partly on presentative and partly on representative experience. Experience, we should remember, merely unfolds and perfects the idea, but does not create it. "I know of no ideas or notions", says Reid, "that have a better claim to be accounted simple and original than those of space and time". (*Intellectual Powers, Essay III, Chap V*) Though, however, the ideas are original, yet they are not so simple in adult consciousness as they might have been in infancy. With the multiplication of experience these ideas become more elaborate and complex, as they appropriate to themselves foreign elements. As in the case of extension we are led to regard it as essentially coloured or resisting, so in the case of

but his view
is questionable

Thus, organic
and
attentional
processes,
presentative
and
representative
factors,
contribute
to the
development
of the idea of
time, which is
primarily *a priori*.

time we are led to think it as essentially phenomenal. As we never have an experience of pure space or time without any sensible content, our spatial or temporal estimate in every case is relative to some definite experience "Empty our minds as we may," observes James, "some form of *changing process* remains for us to feel, and cannot be expelled. And along with the sense of the process and its rhythm goes the sense of the length of time it lasts. Awareness of *change* is thus the condition on which our perception of time's flow depends; but there exists no reason to suppose that empty time's own changes are sufficient for the awareness of change to be aroused. The change must be of some concrete sort" (*Ibid.*, p. 282). Thus, as a resisting surface develops in us the consciousness of the objective aspect of Space, so events or phenomena impress us strongly with the objective aspect of Time.

The subjective estimate of time is vague and variable

Generally it is connected with the cumulative effect of the process of attention

§ 19 Subjective and Objective Estimate of Time *The Subjective Estimate of Time*, like that of Space, is often vague and variable. The psycho-physical conditions of such estimate have already been indicated above. "In general," says Stout, "temporal perception is bound up with the process of attention. The primary experience of 'pastness' is involved in the cumulative effect of attention on its own process. The primary experience of 'futureness', if we may allow the expression, is involved in the essentially prospective nature of attention. The present is characterised by the actual sensations which serve to guide

and determine attention at the moment" (*Manual*, p. 407) Frequent and repeated adjustments of attention as well as difficulties connected with them generally indicate a longer period than momentary, rapt, or easy attention Experiments by Munsterberg and Wylie show, for example, that a procession of uniform colour seen through an orifice seems to occupy a longer time than a procession of variegated colours occupying the same time, and that a series of unmeaning syllables or disconnected sounds seems longer than a series of significant terms conveying a sense In the latter case attention is directed to the sense than to the symbols separately. "*In general*," writes James, "*a time filled with varied and interesting experiences seems short in passing, but long as we look back. On the other hand, a tract of time empty of experiences seems long in passing, but in retrospect short.* A week of travel and sight-seeing may subtend an angle more like three weeks in the memory , and a month of sickness yields hardly more memories than a day. The length in retrospect depends obviously on the multitudinousness of the memories which the time affords. Many objects, events, changes, many subdivisions, immediately widen the view as we look back. Emptiness, monotony, familiarity, make it shrivel up.

"*The same space of time seems shorter as we grow older—that is, the days, the months, and the years do so, whether the hours do so is doubtful, and the minutes and seconds to all appearance remain about the same An old man probably*

frequent and repeated adjustments indicate a longer time than rapt or momentary attention

Time full of varied and interesting experiences seems to be short in passing, but long in retrospect , while empty time is long in passing, but short in retrospect

As we forget the contents of time, it seems to be shorter

does not feel his past life to be any longer than he did when he was a boy, though it may be a dozen times as long. In most men all the events of manhood's years are of such familiar *sorts* that the individual impressions do not last. At the same time more and more of the earlier events get forgotten, the result being that no greater multitude of distinct objects remains in the memory.

Agreeable experiences so occupy us as to lead to an underestimate of time, while tedium or ennui exaggerates it

"So much for the apparent shortening of tracts of time in *retrospect*. They shorten *in passing* whenever we are so fully occupied with their content as not to note the actual time itself. A day full of excitement, with no pause, is said to pass 'ere we know it.' On the contrary, a day full of waiting, of unsatisfied desire for change, will seem a small eternity. *Tedium*, *ennui*, *Langweile*, *boredom*, are words for which, probably, every language known to man has its equivalent. It comes about whenever, from the relative emptiness of content of a tract of time, we grow attentive to the passage of the time itself. Expecting, and being ready for, a new impression to succeed, when it fails to come, we get any empty time instead of it, and such experiences, ceaselessly renewed, make us most formidably aware of the extent of the mere time itself. Close your eyes and simply wait to hear some body tell you that a minute has elapsed, and the full length of your leisure with it seems incredible. You engulf yourself into its bowels as into those of that interminable first week of an ocean voyage, and find yourself wondering that history can have overcome many such periods in its

course. All because you attend so closely to the mere feeling of the time *per se*, and because your attention to that is susceptible of such fine-grained successive subdivision. The *odiousness* of the whole experience comes from its insipidity, for *stimulation* is the indispensable requisite for pleasure in an experience, and the feeling of bare time is the least stimulating experience we can have. The sensation of tedium is a *protest*, says Volkmann, against the entire present." (*Text-Book*, pp. 283-285)

Thus, the poet writes—

"O tell him I have sat these three long hours,
 Counting the weary beatings of the clock,
 Which slowly portion'd out the promised time
 That brought him not to bless me with his sight"

The general tendency, as proved by the experiments of Vierordt and others, is to over-estimate very small intervals and under-estimate comparatively great intervals of time; 7 to 8 of a second is noticed with much precision. According to Dr. Ward, we localize remembered events by reference to (1) "Traces of that movement of attention of which we are aware in passing from one presentation to another" And the presence of such "temporal signs," he says, is proved by the facility with which we recall past events exactly in the order in which they happened. (2) "The working of obliviscence, by insuring a progressive variation in intensity and distinctness as we pass from one member of the series to the other, yields the effect which we call time-distance." This is analogous

We are disposed to over-estimate short intervals and to under-estimate long ones

We localize events by reference to (1) the traces of attentional process

and (2) the degrees of subsidence of original impressions and the consequent variations in the intensity

and distinctness of the corresponding images
The objective estimate of time is more definite and accurate It is generally based on our rhythmical experiences, which favour regular adjustment of attention and correct calculation

Thus, regularly recurring physical phenomena are generally adopted as measures of time

to the effects of aerial perspective in the visual estimate of depth or distance. (*Vide Chap IX, § 7*)

The *Objective Estimate of Time* is primarily based on our rhythmical experiences, whether in the form of muscular sensations or attentional processes, which favour accurate calculation by the regularity of their succession Munsterberg is of opinion that we estimate small intervals of time by means of muscular sensations or motor adjustments. The sense of rhythm is undoubtedly connected with regular muscular adjustments usually associated with attention, as is illustrated when we keep time in music Rhythmic adjustments indicate equal intervals of time , and the total number of such adjustments indicate the total length of time When occasion for such adjustments is furnished by outward phenomena, their regular periodicity becomes a measure of time Such is the case with the regular succession of day and night, the relative positions in the sky of the sun, the moon, or some other prominent heavenly orb, regularly recurring from day to day, the phases of the moon, the flow of the seasons, and the lunar and terrestrial revolutions, which are generally adopted as natural measures of times Monboddo, accordingly, remarks —“By men in all ages the motions of the heavenly bodies have been made the measure of duration , so that this is the full definition of *time*—‘It is the measure of the duration of things that exist in succession by the motion of the heavenly bodies’* (*Ancient Metaphysics*) Similarly, the artificial

* Sanskrit ‘*masa*’ implies month, measure, moon English

measures of time, such as the sun-dial,[†] the hour-glass, the clock, are based on the regular movements involving periodicity and rhythm. Thus, the amount of space traversed in a given time by a uniformly moving body becomes a measure of time, such as we find in the case of the shadow in the sun-dial or the hour and minute hands of a clock, we thus express Time, as Spencer says, in terms of Space. (*Vide Principles of Psychology*, II, p. 208) "Objective time as distinguished from subjective," says Stout, "is a product of ideal construction. The beginning of the process by which it comes to be conceived is found in the conditions of practical activity. Lapse of time is often an important factor in the attainment of practical ends. It takes a certain time, for instance, to travel from one given place to another, or to cook a piece of meat, or for water to boil, or for clay to harden in the sun." Now in practical calculations it will not do to leave the estimate of the lapse of time in such cases to the varying impressions of the individual. The only effective mode of procedure is to find some other process which coincides in its beginning and ter-

Time, though constituting the objective ground of all phenomena, is estimated by ideal construction, or the temporal correspondence of similar experiences or events which happen together

Testimony of Prof Stout

'month' similarly comes from A S *mona*, the moon, and is the measure of the synodic revolution of the moon

[†] The "moral uses" of the sun dial, serving as a measure of Time, are thus humorously indicated by Lamb — "It spoke of moderate labours, of pleasures not protracted after sunset, of temperance, and good hours. It was the primitive clock, the horologe of the first world. Adam could scarce have missed it in Paradise. It was the measure appropriate for sweet plants and flowers to spring by, for the birds to apportion their silver warblings by, for flocks to pasture and be led to fold by" (*Essay on the Old Benchers of the Inner Temple, Essays of Elia, First Series*)

mination with the process of which the duration is to be measured. Thus, if the question be, how long it takes to get from one place to another, a sufficient answer may be found by reference to the course of the sun. It will take perhaps from sunrise to sunset of a summer's day, or from sunrise till noon. The efficiency of this mode of procedure depends upon the discovery of uniform standards of measurement. These are best supplied by rhythmic processes which repeat themselves at intervals. If it is found that the duration of events in general can for practical purposes be defined by saying that they take the same time as one or more repetitions of a certain rhythmic process, this process has proved its efficiency as a standard of measurement. The process which we now most commonly use is the movement of the hands of a clock. The movement of the minute-hand, starting from one position and returning to it again, constitutes a fixed period which we call an hour. So the movement over a smaller interval on the dial constitutes another fixed period which we call a minute. Objective time is thus an ideal construction, and the principle on which it rests is that processes otherwise similar, and taking place under similar conditions, will occupy the same time. Thus if they start simultaneously, they will terminate simultaneously, and so on. Similarly, if two dissimilar processes are found to occupy the same time on one occasion, they will occupy the same time on another occasion, under like conditions" (*Manual*, pp 517-518.) To make

this account precise, we may add that Time itself, as indicated above, is objective, though its *objective estimate* may be said to involve ideal construction.

It may be mentioned here that when the temporal scheme or our idea of time is comparatively definite and accurate by reference to an objective standard, our recollection too grows more definite and precise. Instead of a vague recollection of past experience, without reference to a particular moment of time, we have a definite revival of the past with its special temporal settings (*e.g.*, we recall one experience as occurring on the 21st of May, 1908, and another on the 16th of October, 1913).

With the definite estimate of time, memory also becomes definite

§ 20. Law of Similarity. Objects tend to suggest one another as their points of similarity preponderate over those of difference. The strength of the suggestive force here depends on the number and prominence of the points of similarity. The difference between similarity and contiguity lies in the following :—(1) the one is externally conditioned by reason of temporal, spatial, qualitative, or verbal association, while the other is internally conditioned by reason of the similar mental effect produced by objects. (2) Contiguity illustrates a connection based on proximity, either in respect of space or time, similarity on the other hand, may connect objects widely remote in space or time. A building, for example, seen here may remind one of another like it seen elsewhere long ago.

Enunciation of the law
The preponderance of similarity is a powerful suggestive force

Points of difference between Similarity and Contiguity

(1) Contiguity is externally conditioned, while similarity is internally conditioned

(2) Contiguity rests on proximity, while similarity may connect remote objects or events

That similarity is an independent law of association has been recognised by psychologists since

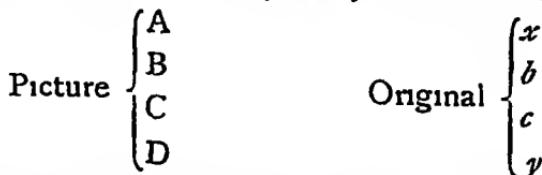
Similarity is
an independ-
ent law of
association

Suggestion by
similarity or
suggestive
assimilation
should be
distinguished
from
spontaneous
assimilation
or recognition

the time of Aristotle. the like tends to suggest the like, a picture suggests the original, a face seen just now in the street may remind us of a similar face that we saw some time back elsewhere.

Suggestion by similarity, or as it is called *suggestive assimilation*, is to be distinguished from automatic or spontaneous assimilation. In automatic assimilation we merely identify an object which we saw before there is the aspect of recognition or familiarity connected with the object. Here the representation of a past object coalesces with its presentation just now, giving rise to identification or recognition. In suggestive assimilation, on the other hand, the thing that suggests and the thing recalled are distinct, and the suggestive force lies in the preponderance of the points of similarity over those of difference. When, for example, a picture suggests the original, there are points of similarity, but there are points of difference as well (the picture being flat and the original, solid, the picture being small and the original comparatively large).

The process of suggestive assimilation may be explained thus — The points of similarity in the picture bring back to our mind the corresponding points as observed in the original, and these latter suggest by contiguity the distinguishing features of the original. It may be symbolized thus —



Here the large letters stand for presentations, and

the small letters for representations. Thus, B and C in the picture revive *b* and *c* in the original by similarity ; and the representations of *b* and *c* revive *x* and *y* by contiguity. The picture, accordingly, suggests the original

γ § 21 Assimilative Integration. When two or more objects are associated by similarity, the presentation of one leads to the revival or representation of the rest. And when they are thus thought of in close association more than once, a contiguous bond is also established between them. This is what is known as assimilative integration, since similar experiences in such cases are welded into one whole by the force of contiguity. For example, when a picture suggests the original more than once, the one would be associated with the other also by contiguity and so would tend to suggest it more strongly. Because the two are presented or represented in close succession, we would connect them both by (a) similarity and (b) contiguity. Thus, when subsequently the picture is present before us, it would suggest the revival of the original more readily owing to the presence of the double bond. Similarly, we find the Latin word *pater* resembles the Sanskrit word *pitrī*; and if we often think of the two together they become more firmly associated by contiguity. Hence, subsequently, the Latin word, *pater*, makes us think uniformly of *pitrī* by assimilative integration.

Objects,
related
and revived
by similarity,
become
further united
by the
contiguous
bond

Thus, they
tend to revive
one another
more readily
afterwards

γ § 22 Law of Contrast. The third form of association is known as Suggestion by Contrast

Enunciation
of the law

Contrast is taken to be a ground of suggestion,

but it is doubtful whether contrast or difference as such can be a ground of revival

Suggestion by contrast involves—

(1) discrimination or consciousness of difference,

(2) an element of contiguity,

It implies that one thing tends to suggest its opposite, for example, light suggests darkness; up, down, cold, heat. It is doubtful whether suggestion by contrast is an independent and elementary form of association, like contiguity and similarity. No doubt, discrimination is a fundamental intellectual function, which manifests itself in every form of knowledge, but it is questionable whether discrimination as such can be the basis of suggestion or inference. Suggestion by contrast betrays, on analysis, the presence of the following factors—

(1) As already remarked, contrast involves difference or discrimination. We know things by distinguishing them, and our knowledge of one thing is clear and distinct when it is placed side by side with its opposite. A child, for example, realizes the full meaning of sweet when contrasted with bitter, of heat when contrasted with cold, of light when contrasted with darkness. And the element of difference between opposite presentations renders the relation specially impressive. Hence the effective force of explanation by antithesis.

(2) Contrary qualities or features, when thus experienced together, are united by a bond of contiguity. And consequently we find terms like virtue and vice, good and bad, right and wrong, pleasure and pain, knowledge and ignorance, etc., are often employed together. For example, it is said that this act is right and not wrong, this object is ugly and not beautiful. Thus, a contiguous

blished between objects characterized

Contiguity, therefore, is an element in
by contrast.

nilarity also enters into suggestion by
Whenever we contrast one thing with
th come under a *generic quality*, which
of similarity between them. Virtue
for example, resemble in expressing
nly, pleasure and pain resemble in being
eling. Hence the remark of Bain that
by contrast illustrates the force of
There can evidently be no contrast
objects having no unit of comparison ; for
between quinine and fever, or between a
eight and the sentiment of beauty.

**Are the Laws of Association
Distinct ?** There is a dispute among
us as to the number and scope of the
laws of association. As mentioned above,
laws are generally recognised, namely,
similarity, and contrast. Some writers,
try to trace these laws to one fundamental
an attempt has been made in three

Some writers hold that ultimately there
fundamental law of association, of which
similarity, and contrast are merely
forms. Hamilton, for example, maintains
is but one fundamental law, called *redintegration*,
which may be explained as a tendency on
of the mind to complete the circle of
acts associated by contiguity, similarity,

and (3) an
element of
similarity

The three
laws of
association
are sometimes
traced to one
*Different
views on the
point*

(1) Some
hold that
ultimately
there is
but one
fundamental
law of
association,
of which
contiguity,
similarity, and
contrast are

only different forms.
Hamilton's Law of Redintegration

(2) Others hold that contiguity is fundamental, the other two forms being reducible to it
(James Mill)

or contrast become, as it were, parts of one whole, so that, when subsequently one of them is presented, the rest are recalled (there being a tendency in the mind to a reinstatement of the whole)

(2) Other writers (*e.g.*, James Mill) hold that contiguity is the fundamental law, the other laws being but modifications of it similarity and contrast are thus reduced to contiguity. It may be illustrated thus —Suppose a picture suggests the original by similarity, and let us represent the details of the picture by *A*, *B*, *C*, and *D* and those of the original by *a*, *b*, *f*, and *g*.—*A* and *B* being the points of similarity. It is contended by the supporters of this view that the revival of *a* and *b* by *A* and *B* is not a case of association at all, the same features being present in both. When *a* and *b* suggest *f* and *g*, contiguity is illustrated. Thus, what is called similarity is but an aspect of contiguity.

(3) Other writers (*e.g.*, Spencer) hold that similarity is the fundamental law, and what we call contiguity is but an aspect of it. The position may be explained thus —Suppose the table before me suggests the black-board by contiguity. It is contended by the supporters of this view that the table suggests the black-board because they held a *similar* position in time or place before. Thus contiguity is resolved into similarity.

When such conflicting views present themselves to us, we find that there is an element of truth in almost all of them. It is undoubtedly true that contiguity involves an element of similarity.

arity, an element of contiguity; and contrast, elements of similarity and contiguity. We should remember, however, that we classify mental operations according to their predominant characteristics as compounds and not according to their separate natures as simples. When, therefore, we call a law assimilative suggestion we do not mean by it that similarity is the only factor present in it, and that there are not also elements of contiguity and contrast involved in it. All that we mean is that similarity is the predominant factor or feature. The same remark holds good with regard to contiguity and contrast.

are to be viewed as distinct by reference to their predominant features.

§ 24. Psychical Unity Revealed in Association. Revival in any case is really determined by a plurality of factors. We have seen that even in contiguity there is an element of similarity; and in similarity there is an element of contiguity. And, in every concrete case, revival is generally a complex effect produced by factors illustrating similarity, contiguity, and contrast. For example, the recollection of a person may be determined partly by similarity (namely, the like features of another person seen just now), partly by contiguity (namely, observing the place or hearing the name associated with the individual), and even by contrast (*e.g.*, noticing a man of an opposite stature or character). The unity of mental life is thus revealed also in memory, when the several suggestive tendencies conspire to reproduce at one condition to which they relate. "What
a
erates," says Höffding, "is the tendency to

Mental unity explains the mutual implication of the different laws of association. And, as a matter of fact, the mind is led not by any one of them singly, but by all of them jointly, in the case of revival.

re-awaken the general state, or the general activity to which all these ideas belonged. The innermost basis of all association of ideas should thus be looked for in the unity which is present in every mental state and every mental activity."

**Distinction
between
Convergent
and Divergent
Association**

The psychical unity involved in association illustrates the distinction between what are called *Divergent* and *Convergent Suggestions*. Since suggestion often operates in a complex form, we generally find one and the same object associated with many others by different bonds of suggestion (namely, contiguity, similarity, and contrast). For example, *A* may be associated with *B, C, D, E*, and *F*. When such is the case, then the presentation of *A* would tend to suggest any one of its associated adjuncts, namely, *B, C, D, E*, or *F*. And when we want to remember *C*, *A* may suggest *B* or *D*, and this is characterized as *Obstructive* or *Divergent Association*. In such a case, the more potent suggestive tendency inhibits the rival tendencies. But what from one stand-point, may seem to be obstructive from a different stand-point may appear as favourable. When, for example, we want to remember *A*, then any one of its associated adjuncts *B, C, D, E*, or *F* may serve our purpose, and, when all of them are present, their combined effect is to facilitate the revival of *A*. This is known as *Convergent Suggestion*.

**Convergent
suggestion
ordinarily**

* These two forms of suggestion have been likened by some to what happens to us when we are in or outside a city having several roads leading to it. When we are in the city, the different roads are obstructive or puzzling, in as much as, instead of going in the required direction, we may go in a different direction. But when we are outside the city and intend to go into it, the several roads are useful, in as much as we may travel along any one of the several.

In ordinary recognition, classification, or apperception of an object, we are guided by convergent suggestions: the recognition, classification, or clear apprehension is really the outcome of several factors or features

determines
recognition,
classification,
or appercep-
tion.

It is apparent from the foregoing remarks that revival on any particular occasion is the result of several factors. The psycho-physical condition and the circumstances determining retention and suggestion affect the revival of an event. When, for example, we are physically tired or mentally dejected, we are not in a favourable mood to reproduce what we may possibly retain. And even when the physical and mental conditions are favourable, the previous depth of impression and the force of suggestion affect the result. When we have but a faint recollection of some past insignificant experience or when the suggestive force is inadequate, we may fail to remember what we want, even if the psycho-physical condition be favourable. Thus, it is clear that revival in any case is dependent on a plurality of conditions.

Thus, revival
in any case is
determined
by a plurality
of conditions
—psychical,
physiological,
and physical

§ 25. Passive and Active Memory: Remembrance and Recollection. The reproduction of a past experience may take place in either of two possible ways: —

(i) We may sometimes easily and without any effort remember a past event. In fact, in some cases we cannot help remembering a past incident, because the revival is the necessary outcome of the suggestive forces at work. For, example, when a readily suggests to the mind the person or

(i) Passive
memory is
that easy
remembrance
which is
determined
merely by
the suggestive
forces at work
at the time.

object signified. But instances of such facile or easy remembrance are comparatively rare. Wordsworth, referring to his experience of the Daffodils, writes—

“For oft, when on my couch I lie
In vacant or in pensive mood,
They flash upon that inward eye
Which is the bliss of solitude ,
And then my heart with pleasure fills,
And dances with the daffodils.”

(2) Active memory implies the personal regulation of the suggestive forces with a view to recall a definite object. Attention regulates recollection or the active form of memory by (2) the fixation of ideas

(2) In many cases we have to put forth an effort to put ourselves on the way to recollect what we want. This actively controlled revival is known as recollection. It is effected principally by the exercise of attention. Attention determines the revival of an event in two ways —

(i) *Fixation of Ideas.* When attention is directed to a partially developed idea, it rises above the threshold of consciousness, and thus we recollect it. We have already read that the effect of attention is to raise in point of intensity, definiteness, and clearness the object attended to, and, when we attend to an idea in the subconscious stage, we bring it above the threshold of consciousness.

and (ii) the control of the suggestive forces by intensifying certain suggestive factors and weakening others

(ii) *Control of Suggestive Forces.* By the direction of attention we may strengthen certain suggestive forces and by the withdrawal of attention we may weaken the rest, and thus we may place ourselves on the way to the recollection of the appropriate object. When, for example, we want to remember a particular name or date, we repel the tendencies which suggest wrong names.

dates and intensify the tendencies, suggesting the appropriate one, by attending to them. It should be mentioned in this connection that (1) the very fact, that we can withdraw our attention from misleading suggestions and direct our attention to the appropriate or favourable ones, implies that we have from the very beginning a vague consciousness or glimpse of what we want. Moreover, (2) the appropriateness or correctness of the revived object is ascertained by its consistency with the other connected circumstances. When, the thing reproduced does not fit in with the connected circumstances, we have an additional evidence that the thing recalled is not the right one. When, for example, we try to recollect the date of our visit to a friend during the last summer holidays, and we happen to remember the 10th of April, we at once conclude that we do not remember the correct date, in as much as the summer vacation commenced by the end of April. The difference between passive memory, which at times misleads, and the active form, which is generally regulated by a sense of consistency or fitness, is well indicated in the following lines.—

“When I think of my own native land,
In a moment I seem to be there ;
But alas ! recollection at hand
Soon hurries me back to ‘despair’”

§ 26. Degrees and Forms of Memory.
Memory is seldom perfect · we remember but few incidents with ease and without any difficulty.

This active regulation implies that (1) we have from the very beginning a dim consciousness of what we want

and (2) a sense of consistency by which we determine the correctness of the thing recalled

There are degrees of memory between the

extremes of
forgetfulness
and
spontaneous
revival

Memory, as a
conservative
and
reproductive
faculty, is not
equally strong
in all
individuals in
all directions.
It often varies
from case to
case

Good memory
in any
direction
implies good
organization
of the
corresponding
centres,

Thus, there are degrees of remembrance ; or, to put the same thing otherwise, there are degrees of forgetfulness. Some things we may forget altogether, and these come in the region of total obliviscence ; but many experiences we partially forget and may recover with more or less difficulty.

It is scarcely correct to say that memory is a single faculty - we have memories for different experiences, which are not all uniform in character. For example, we have a memory for colour, a memory for sound, a memory for form, *etc* ; and a person, having a good memory in one direction, may not necessarily have an equally good memory in other directions. Thus, it is apparent that one uniform memory, apart from particular forms of memory, is not to be found - "A memory is everywhere , but *the* memory, no where."

Memory is a psycho-physical property. It has a physiological or nervous as well as a psychological or mental condition. As already mentioned, the physiological condition of memory is the modification of a particular centre of the brain. And if in a person one particular centre (for example, that of vision) be better organized than another, then memory for experiences connected with the former centre would necessarily be better. Thus, painters are presumed to have better organized visual centres, and musicians, better organized auditory centres. In general, it may be said that *memory varies with discrimination* , and the more refined a sense-organ, the better are its experiences remembered (*e.g.*, sights and sounds are better remembered than tastes).

When persons are found to possess a comparatively good memory all round, then the presumption is that all the centres are well organized ; and it is further supposed that in such cases the centres connected with language must be well organized. When Thridates the Great or Kalidasa, Pascal or Macaulay, for example, remembered many things, they remembered them because they had a good memory for language. Remembering the names, they naturally remembered the connected ideas and things.

while a generally good memory often implies a good organization of the centres of language.

§ 27. Culture of Memory. The cultivation of memory implies the improvement of all those tendencies which contribute to the revival of experiences. Such cultivation often takes a special form, such as the culture of the memory for sights or for sounds. The factors which contribute to the improvement of memory are chiefly three, *viz.*, (1) quickness and system in acquisition, (2) strength or tenacity of retention, and (3) facility and adequacy of reproduction. Let us say a few words with regard to each of these.

The circumstances which help the improvement of memory are—

(1) *Acquisition* Facts are readily learnt when they are made interesting by reference to their features of novelty, familiarity, or utility. Moreover, careful assimilation and discrimination render acquisition definite and systematic.

(1) quick and systematic acquisition,

(2) *Retention* The strength of retention is determined partly by natural adhesiveness and partly by the degree of attention. To rouse attention by exciting the feelings as well as to connect

(2) tenacious retention,

facts by contiguity, similarity, or contrast is materially to help their retention.

and
(3) prompt,
easy, and
faithful
reproduction.

(3) *Reproduction.* Revival is rendered easy by the absence of pre-occupation or disturbing circumstances and the concentration of attention on connected experiences. If facts have been acquired systematically or methodically, their revival is rendered comparatively easy. We can then reproduce them without much difficulty by dwelling on favourable suggestive influences. The art of mnemonics illustrates but the suggestive values of similarity and contiguity in the form of ideo-verbal integration.

A refreshed and vigorous condition of mind as well as of body is favourable to an exercise of memory

The limits to the cultivation of memory are assigned in our psycho-physical constitution

As memory involves the expenditure of psycho-physical energy in a prominent form, a refreshed and vigorous condition of mind as well as of body is always favourable to acquisition, retention, and revival. And we should remember that though special forms of memory may be improved by proper exercise, yet memory as a whole cannot be increased without injury to the other sides of our nature. Thus, the undue improvement of one form of memory generally takes place at the cost of another. In fact, the limits to memory are assigned in our psycho-physical constitution. The organization of the brain necessarily determines the extent of every mental power. But though this is true, yet, by careful observation and regulated attention, we may, to a great extent, improve the mental power within the limits assigned by nature. And the improvement of memory implies that we can transcend, as it were, the limitations of time and place.

"Hail, memory, hail ! in thy exhaustless mine,
 From age to age unnumber'd treasures shine !
 Thought and her shadowy brood thy call obey,
 And place and time are subject to thy sway !"

§ 28. Exercises.

1. How is Retention to be explained ? Analyse the object of Memory, and explain the phenomenon of Reminiscence

2. Distinguish between images and percepts. What is the biological significance of the differences between them ?

3. Distinguish the different stages in the process by which experiences sink into a sub-conscious state. Indicate the special features marking off the memory-image from other images.

4. Describe the process of the revival of percepts. What do you understand by Association of Ideas ? Is there any difference in the use of these laws as made by Intuitionists and Empiricists ?

5. Enumerate the Laws of Association and mention some of the attempts to reduce them to a smaller number of wider laws

6. Is Memory a simple mental operation ? or can it be resolved into more elementary processes ? How is it we can often recall the initial letter of a person's name without being able to recall the whole name ?

7. Explain the conditions, and point out the intellectual value, of 'a good memory'. Can memory be improved by training ? and, if so, in what ways ? Is it possible to have *too good* a memory ?

8. How does Recollection differ from Memory ? When we have forgotten the name of some person, what means have we of recovering it ? Why do we sometimes find it more difficult to recall the name, the harder we try ?

9. Distinguish between Reproductive and Productive

Imagination State the general conditions on which the retention and reproduction of percepts depend

10 Some psychologists have maintained that Memory is the fact to be accounted for, others, that it is Forgetfulness Explain this difference, and give your own views

11. State the law of Contiguous Association, and show its operation in the reproductive process Explain how attention modifies the process of reproduction

12 What precisely do you understand by Association of Ideas? Explain how the Law of Contiguous Associations is illustrated in the process of 'learning by heart'

13. Estimate some of the attempts made to simplify the Laws of Association What do you consider to be the limits of such simplification? What is meant by the law of transference?

14 Is Contrast an independent principle of Association? Show how it involves an element of similarity?

15. State and explain the principles of mental reproduction. Do you consider similarity to be one of the ultimate principles? Does memory involve any element not given in sense-data?

16 Explain the doctrine of Inseparable Association, and discuss the question as to how, if inseparable, the associated elements can be validly distinguished

17 Distinguish between (1) Convergent and Divergent Suggestion, (2) Memory and Expectation Show that Expectation is grounded on Memory

18. What do you know of the opinions of philosophers as to the origin of our idea of Time?

19 Analyse our subjective perception of Time, and compare this with our scientific conception of it

Sight is often called the Space-sense pre-eminently has any sense a similar pre-eminence as regards Time? Mention facts illustrative of your answer

20 Trace the development of the idea of Time

Under what conditions does a given period of time appear

short or long (1) while passing, (2) in retrospect, What explanation would you give of these facts?

21. Make a careful psychological analysis of what is implied in perceiving (1) Succession and (2) Duration

22. Give some account of our natural and acquired powers of estimating periods of Time, noticing any peculiar personal or professional developments of this power

23. Distinguish between a succession of perceptions and the perception of succession, and make a careful psychological analysis of the latter.

24. What are Trains of Representations and Assimilative Integration? Illustrate your answer by examples.

25. Indicate the physiological conditions of Memory. Elucidate—"A memory is everywhere, the memory nowhere"

CHAPTER XI.

IMAGINATION.

Imagination is popularly used in the sense of Constructive Imagination, but strictly speaking it stands for the representative faculty which includes both Memory and Constructive Imagination

In Productive or Constructive Imagination, the mental image involves a modification of what was experienced before, while, in Memory or Reproductive Imagination, the image is a faithful copy of what was presented to the mind before.

✓ § 1 ✓ **Memory and Imagination** Imagination is ordinarily used in the sense of constructive or productive Imagination. The scientific use of the word, however, includes both memory and imagination in the popular sense of the term. Reproductive and Productive Imagination both illustrate the representative power of the mind, and hence they are considered as different forms of Imagination

Productive or constructive imagination is to be distinguished from memory by the fact that in the former the mental image involves a modification of what we experienced before, while in the latter the image is the faithful copy of the presentation. No doubt, in memory, too, there is modification at times, as illustrated in wrong revival, but the modification in memory is brought about only by the suggestive forces, and it is moreover not so prominent. As we classify mental operations by reference to their predominant characteristics as compounds, there is reason for calling the form, in which the modification is prominent, 'productive,' and the form, in which the modification is subordinate, 'reproductive.' The change, in the one case, is voluntarily produced, while, in the other, it is spontaneously brought about.

§ 2. **Nature and Limits of Imagination.** The function of Imagination (by which we

shall understand in this Chapter Constructive or Productive Imagination) is to combine or separate elements previously presented to the mind. We may imagine, for example, a mountain hanging in the air or a mountain made of gold, a horse without its head or a being half man and half horse. In the one case, we mentally separate a mountain from its surroundings or the body of a horse from its head, while in the other we combine two distinct ideas (such as those of mountain and gold, man and horse) in the form of a complex image. All that we can do is thus to separate or combine variously the elements presented in experience : we can never create a wholly new elementary idea. Thus, a man born deaf can never understand what sound is, nor can a man born blind realize what is meant by colour. A blind boy naturally exclaims—

tive Imagination is to combine or separate elements previously experienced ;

it can never create anything together

"Oh say what is that thing call'd Light,
Which I must ne'er enjoy,
What are the blessings of the Sight :
O tell your poor blind boy !

You talk of wondrous things you see ,
You say the sun shines bright ;
I feel him warm, but how can he
Or make it day or night ?"

The ultimate materials for imaginative exercise are, accordingly, supplied by the different sense-experiences.

The limits to the exercise of imagination are found to be fourfold. It is limited by (1) sense-

Exercise of X
Imagination

is limited
by—

(1) the
materials or
sense-impres-
sions,

(2) memory
or facts
recalled,

(3) insepar-
able associa-
tion

impression, (2) memory, (3) association, and (4) laws of thought. Let us briefly explain them in distinct paragraphs.

(1) Physically and mentally we are but finite beings · we can never create or annihilate a single atom or an elementary experience , it is only left to us either to combine or separate the objects presented to us. We have already seen that we can never imagine what is wholly new. It is said that once a blind man thought scarlet colour to be like the sound of a drum, when the colour was described to him as very loud.

(2) Defects of memory evidently affect Imagination. When appropriate facts cannot be remembered, an exercise of imagination becomes impossible , and, likewise, when facts are wrongly or imperfectly recalled, the consequent exercise of imagination becomes also defective or imperfect

(3) It is extremely difficult, if not impossible, to reverse a relation which we have always noticed. As Mill observes, facts uniformly presented together or in close succession become inseparably associated together in the mind, so that subsequently it becomes almost impossible to conceive the one without the other. Thus, we can scarcely imagine men living in the antipodes without falling downwards, or represent form without colour, or colour without form. The king of Siam who could not imagine water to be solid in the form of ice well illustrates this tendency. Inseparability of association, however, should not be taken to imply inseparability of the things associated. (*Vide Chap X, § 10*)

When no inseparable association is produced, owing to the absence of uniform experience, our representation is generally determined by the impressiveness or preponderance of a particular conjunction as distinguished from others. Thus, in thinking of the heavenly bodies, we ordinarily represent the sun and the moon, and in thinking of metals, we represent them as solid. Even the fabulous monster 'centaur' is represented as having the upper part of man and the lower part of horse, and not otherwise, since we usually notice men riding on horses, instead of horses riding on men.

or preponderance of experience,

(4) What transgresses the fundamental laws of thought can never be imagined by us. We are unable, for example, to conceive that an event is uncaused, or that a man is both alive and dead, or that he is present in two different places at the same time. A little reflection shows that the notion of consistency or harmony vaguely colours even the most extravagant exercises of imagination, such as our representations of heaven or hell, fairies or demi-gods, Aladdin's Lamp or Jack the Giant-killer, an angel or a mermaid.

and (4) the laws of thought

A sense of consistency ordinarily regulates even the most extravagant exercises of imagination

✓ § 3 Forms of Imaginative Activity. Imagination may first be divided into two forms known as (I) *passive* and (II) *active*.

Forms of Imagination.

(I) *Passive Imagination* consists in the representation of a new complex experience, suggested merely by the laws of association. In passive imagination we do not actively add to or subtract from the elements revived, thereby forming

(I) Passive, in which the complex image is formed merely by the laws of association.

a new image, it is rather the product of the laws of association *spontaneously operating in us*. The several factors suggested by contiguity, similarity, or contrast may spontaneously coalesce, thereby giving rise to a new image. It is usually illustrated in dreams and reveries.

✓(II) *Active Imagination*, on the other hand, implies that we are not completely under the control of the suggestive forces in order to the formation of a new image, we rather select or reject some of the materials with a view to the production of a desired result. Here active regulation underlies the formation of an image. We control the constructive process and determine the character of the image by selection and rejection. The suggestive forces are at work, but we regulate them for some end in view.

(II) Active,
in which the
image is
formed by
personal
choice

Active
Imagination
is either

(1) Receptive,
in which the
choice of
materials is
determined
by suggestion
from without,

Active imagination again may be of two distinct forms—

✓(1) *Receptive*. We find it when we form an image under the guidance of a suggestion coming from without. This form is illustrated when, on reading a description, we imagine the described object, or, on observing an action, we imitate its performance. In this case the formation of the new image or the execution of the new action is not entirely left to ourselves, it is the product of description or suggestion coming from without. We have here to follow a line of thought or action suggested by another.

or
(2) Creative,
in which the

✓(2) *Creative*. We get it when we form an image by the active selection or rejection of

materials suggested to the mind, and, in this selection or rejection, we are not aided by any description or suggestion from without. This is prominently illustrated in the case of a poet, who frames complex images according to his end in view (*e.g.*, Milton describing heaven or hell by the selection of appropriate materials). It is to be borne in mind that this creative form of imagination is the highest form of imaginative activity.

X It may be mentioned here that the distinction between passive and active imagination or that between receptive and creative imagination is not an absolute one. They are not quite exclusive, but are implicated in one another. Even in the passive form there is a rudiment of activity, so far as the direction of attention is concerned, and in the active form there is an element of passivity, so far as the suggestive influences are concerned. Similarly, in the receptive form, there is creation, so far as active selection under a guiding sense of fitness is concerned, and in the creative form there is the reception of materials as suggested by the laws of association. But, inspite of such connection, we should treat the several forms as distinct, as having prominent characters of their own. We should never lose sight of the fact that we classify mental operations by reference to their predominant characteristics as compounds and not according to their separate natures as simples (*Vide* Chap. V, § 1.) We should further remember in this connection that we can never dispense with the

construction depends only on personal choice

The creative form is the highest form of imaginative activity.

These distinctions are relative and not absolute

Laws of association are indispensable

sable to every form of construction

laws of association in any form of imaginative exercise elements must be suggested, though they may be grouped fantastically or rationally by passive or active, receptive or creative, imagination

Dreams and reveries illustrate the passive form of imagination

§ 4 Dream and Reverie. As already mentioned, dreams and reveries illustrate the passive form of imagination. By this is not meant that there is no element of activity in these processes. We have seen that, without some degree of attention or mental alertness, there can never be any consciousness at all. (*Vide* Chap VI, § 4) But the form of activity illustrated in dream and reverie is rather non-voluntary than voluntary, mechanical than rational, conditioned by suggestive forces than by judgment. Even the extraordinary feats performed by somnambulists bear this character, though initiated at times by some lingering purpose of waking life.

They may be viewed as forms of Fancy, which represents things divorced from their context

Both Dream and Reverie illustrate what is called *Fancy* or *Fantasy*, which is but representation divorced from its context. It implies the power of representing things without their spatial and temporal settings and so without any recognition. Thus, in *Fantasy*, we picture things which seem to be present realities, without any reference to place or time in which they might have been perceived. And often the images, thus occupying the mind, combine in such extravagant ways as to give to fancy its ideal or wild character. Hence the adjective fanciful or fantastic.

Fancy often assumes an ideal character owing to the

cont

" Dreams are but interludes which fancy makes,
 When monarch reason sleeps, this mimic wakes : . . .
 Compounds a medley of disjointed things,
 A mob of cobblers, and a court of kings .
 Light fumes are merry, grosser fumes are sad ;
 Both are the reasonable soul run mad."

The difference between Dream and Reverie lies in the fact that the constructions of the one take place during sleep, while those of the other, when we are awake. But, in spite of this difference, we find marked points of similarity between them : (1) in both, as we have said, we are comparatively passive, (2) in both, the exercise of the senses is, for the time being, more or less, suspended, the mind being completely under the influence of imagery suggested by the laws of association ; and (3) in both, consequently, the images attain to unusual vividness and clearness, which bring about a confusion with facts or realities.* Hence Reverie is called *Day-dreaming*; and we have a typical instance of it in Alnaschar Dream.

The superior vividness of dream-images is due chiefly to two circumstances (1) The absence of sense-impressions, by excluding contrast, renders images vivid and distinct. As there is no rivalry in dream between percepts and images, the latter

* Sir James Mackintosh, speaking of his younger years, mentions—"Reading of Echard's Roman History led me into a ridiculous habit from which I shall never be totally free. I used to fancy myself Emperor of Constantinople. I distributed offices and provinces among my school fellows. I loaded my favourites with dignity and power, and I often made the objects of my dislike feel the weight of my imperial resentment. I carried on the series of political events in solitude for several hours. I resumed them and continued them from day to day for months. Ever since I have

Difference
between
Dream and
Reverie

Their points
of similarity.

Reverie is
known as
Day dream-
ing

The superior
vividness of
dream-images
is due to
(1) the
absence of
sense-
impressions

and (2) the consequent monopoly of attention secured by the images

Hence the confusion of images with percepts

and the extremely inadequate estimate of time

seem to be as clear and vivid as perccpts As Hobbes says, "When the sun goes down, the stars shine out." (2) The dream-images thus monopolize the attention, the effect of whch is to render them very impressive We have already read that an important point of difference between percepts and images is the superior intensity and vividness of the former When, therefore, images approach the vividness and intensity of percepts and there is no sense-experience to show by contrast the inferiority of these images, we naturally confound them with the percepts themselves That this is the case is evident from the fact that we attribute to the succession of images the same length of duration which we notice in the case of a real succession of events We overlook the difference between the electric speed of thought and the slow march of actual events Hence the estimate of time is egregiously erroneous in dreams. We seem to traverse days and months in the course of a few minutes during dream Count Lavalette, for example, gives the following account of a dream which he had when imprisoned under sentence of death —"One night, while I was asleep, the clock

been more prone to building castles in the air than most others. My castle building has always been of a singular kind. It was not the anticipation of a sanguine disposition expecting extraordinary success in its pursuits My disposition is not sanguine, and my visions have generally regarded things as much unconnected with my ordinary pursuits and as little to be expected as the crown of Constantinople at the school of Fortrose These fancies, indeed, have never amounted to conviction, or, in other words, they have never influenced my action, but I must confess they have often been as steady and of as regular occurrence as conviction itself, and that they have sometimes created a little faint expectation, or state of mind, in which my wonder that they should be realized would not be so great as it naturally ought to be "

of the Palais de Justice struck twelve, and awoke me I heard the gate open to relieve the sentry ; but I fell asleep again immediately. In this sleep I dreamed that I was standing in the Rue St. Honore at the corner of the Rue de l' Echelle. A melancholy darkness spread around me , all was still , nevertheless, a low and uncertain sound soon arose All of a sudden I perceived at the bottom of the street, and advancing towards me, a troop of cavalry, the men and horses, however, all flayed. This horrible troop continued passing in a rapid gallop, and casting frightful looks on me Their march, I thought, continued for five hours , and they were followed by an immense number of artillery-wagons, full of bleeding corpses whose limbs still quivered , a disgusting smell of blood and bitumen choked me. At length, the iron gate of the prison shutting with great force, awoke me again I made my repeater strike , it was no more than midnight, so that the horrible phantasmagoria had lasted no more than two or three minutes—that is to say, the time necessary for relieving the sentry and shutting the gate ..The cold was severe and the watchword short. The next day the turnkey confirmed my calculations."

The images of dream are often of an extravagant character, as they are spontaneously brought about by the suggestive forces without any voluntary regulation. And we find consequently that the power of reflective decision or choice is generally suspended in dream, though the powers of thinking, feeling, and acting, as deter-

The extravagant character of dream-image is due to the exclusive influence of the suggestive forces and the absence of the power of

reflective synthesis

Hence grotesque combinations do not seem to be absurd,

especially as there are no realities to correct the belief

We do not generally remember dreams, because ordinarily they are not connected with the realities of our waking life, which might have suggested their revival.

Dreams of unconnected and remote incidents are often started by the spontaneous influence of the laws of association, which are roused to activity by organic sensations or

mined by the laws of association, are still left. We do not control, but are mechanically led by, the suggestive forces. Thus grotesque combinations, such as the juxtaposition of distant places or times, the union of inconsistent qualities or features, do not seem to us to be absurd in dream. Once in a dream I inquired of a dead man how long he had been dead. And such absurdities escape because there are no realities or facts to disprove them at the time of dream actually it is never possible to have a man at once in this and the other world, but ideally it is not absurd when we are borne along a train of representations without the power of reflective synthesis. And the absence of realities accounts for another peculiarity of dreams, viz., that we often forget them after waking. Most of our dreams sink below the threshold of consciousness during sleep and we cannot recover them afterwards owing to the absence of suitable suggestive circumstances connected with them by similarity, contiguity, or contrast.

Though in many cases our dreams are connected with recent experiences, yet it not infrequently happens that they pertain to facts of which we have not been thinking or of which we have not thought at all. Such strange dreams we may try to account for in two ways —(1) When shut out from the disturbing influence of the real world, we are completely at the mercy of the suggestive forces which may carry us, by their fantastic combinations, in quite new directions (2) Dreams are often started by organic sensations or even sensa-

tions of the special senses dimly perceived during sleep. Thus, difficulty in breathing, caused by a tight coat, may revive by similarity a feeling of suffocation, which may lead by contiguity to the image of being throttled by robbers, and so on. Likewise, a feeling of thirst may lead one to dream of delicious drinks and of Mahomedan Paradise, or a feeling of cold to dream of wandering in the Himalayas or *Kailasa* (Hindu Paradise). Once a man dreamt of descending the crater of Mount Etna of which he had read an account a few days before, simply because he felt during sleep the heat of a stove placed near his feet. And the range of this explanation is greatly widened when we remember that during sleep some susceptibility to impression is left, with varying degrees of intensity and distinctness, in the case of almost all the senses. And some persons, by habit or exercise, have, during sleep, some of their senses active while others are insensible or obtuse. The miller, for example, sleeps so long as his mill is grinding, but wakes if it stops; while another person sleeps when it is still, but wakes when it works. Moreover, all the senses do not fall to sleep nor rise to activity at once. Cabanis is of opinion that, in the case of sleep, sight first disappears, then taste, after that smell, next hearing, and last touch. In waking the senses are generally aroused in the order of touch, hearing, sight, taste, and smell.

As *Dr Freud's account of dreams* has excited some interest in certain quarters, it is desirable that we should notice it briefly here. Accord-

experienced
during sleep.

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tibility to
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activity again.

According to
Freud dream
is an ideal
realization

of repressed
desires

ing to him, dream is but an ideal realization of repressed desires. Since infancy we are accustomed to repress, for one reason or another, many of our wishes, which nevertheless continue as powerful undercurrents in our sub-conscious life. When, therefore, there is a transition from the waking to the sleeping condition, the sub-conscious forces have an opportunity to assert themselves, and thus the fruition of our ardent desires, repressed during waking state, is attained ideally—specially by reference to associated visual images. "An idea merely existing in the region of possibility is replaced by a vision of its accomplishment." (Freud, *On Dreams*, p. 32) As, however, a sense of what is elegant or decorous never leaves us altogether and as some degree of watchfulness persists even during sleep (evidenced, for example, by such facts as the mother being awakened by the whimpering of her child or the miller by the cessation of his mill), images, called up during sleep, are subjected to some censorship consistent with our sense of propriety or decency. Hence the dream distortion of ideas spontaneously suggested by the repressed desires or cherished wishes. The dream work in adult life generally consists, according to Freud, in this distortion or displacement of the vital elements prompting the dream by more elegant ideas or images*. There are thus two elements in a dream,

* In children there being no motive to conceal their thoughts, this element of distortion or displacement is wanting. Freud, accordingly, divides dreams into three classes: (1) Dreams which exhibit a non-repressed or non concealed desire (infantile type, rarely illustrated in adult life), (2) dreams which express in veiled form some repressed desire (frequently illustrated in adult life), and

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one (1) its *latent content* or the real motive force and the other (2) its *manifest content* or the elegant ideas supplied by dream work. The latent content may be so very deep and subtle that it may elude the grasp of the dreamer himself, who is tempted to believe the manifest content as the real dream. And, on awaking, we generally remember this manifest content, as it is more consistent with our sense of propriety, which also prompts us to turn our attention away from the latent content. "Once the sleeping state overcome, the censorship resumes complete sway, and is now able to revoke that which was granted in a moment of weakness. That the *forgetting* of dreams explains this in part, at least, we are convinced by our experience confirmed again and again. During the relation of a dream, or during analysis of one, it not infrequently happens that some fragment of the dream is suddenly forgotten. This fragment so forgotten invariably contains the best and readiest approach to an understanding of the dream. Probably that is why it sinks into oblivion —*i.e.*, into a renewed suppression." (*Ibid.*, pp. 90-91).

Though there is an element of truth in Freud's account of dreams, yet it is not fundamentally correct. Dream work does not consist, as he maintains, in suppressing obnoxious ideas and

Two elements in a dream :
the latent and
the manifest content.

Freud's account of dream does not seem to be correct, since the

"is where repression exists, but without or with out sight. This last form is invariably accompanied by a feeling which puts an end to the dream. Dream displacement in this, which is essentially the work of the dream, preventing of dread by fair and decent representation.

relatively
passive
attitude in
dream is not
consistent
with active
censorship

Dreams are
excited by
recent
experiences.

Some
abnormal
forms of
dreams

(I) Exceptional feats of invention and construction during sleep

Illustrations

entertaining elegant ones to satisfy our sense of propriety All ideas, suggested by dreams, are not objectionable , and so the censorship is not so general as Freud imagines Nay, the general passivity of mind in dream, as explained above, leaves very little for the censor to do We find, as a matter of fact, that traits and characters are very faithfully represented in dream, without any consideration of their propriety or impropriety. Dreams may, no doubt, be excited by repressed desires, which continue as sub-conscious forces craving for at least an ideal satisfaction, as when a child in his dream cries out 'mango !' which was denied him during the day Dreams are, as a rule, suggested by recent experiences (specially those of the dream day), which serve as exciting causes.

While on the subject of dreams, let us notice three prominent forms of them, which seem to be inconsistent with their general character These are (I) exceptional feats of invention and construction which cannot be performed by an individual even when he is awake, (II) somnambulism or sleep-walking, and (III) hypnotism or artificial sleep Let us say a few words on each of them.

(I) We have said that the form of activity illustrated in dream is rather mechanical than rational , and yet we find at times difficult problems solved, excellent discourses composed, and future issues correctly determined in dream. Condorcet, for example, would complete difficult calculations during dream, which he could not do while awake , and Coleridge dreamt his *Kubla Khan* (suggested

evidently by his reading Purchas's *Pilgrimage*) and wrote it out next morning. Feats like these apparently involve an exercise of reason and are not ordinarily illustrated in dreams. But when we look into these facts, we find they are not exceptions to the rule. They are easily explained when we bear in mind the following points.—(1) Such feats are performed by those who are accustomed to them in their waking hours.⁴ (2) The habits acquired by repeated exercise can work infallibly when free from distracting circumstances, which so often force themselves upon our attention in waking hours.⁵ (3) The monopoly of attention secured by relevant images naturally tends to bring about a correct and happy result.

We may notice in this connection the power of divination and prophecy sometimes claimed for the somnambulist. Before attempting a psychological explanation of these phenomena, we may mention that we are generally disposed in such cases to overlook the negative instances of failure and to emphasize the positive instances of success. And the successful instances can generally be accounted for with the help of the principles mentioned above. Concentration of the mind on relevant materials and the exclusion of all disturbing agencies are often calculated to lead to a correct conclusion in such cases with as much precision and certainty as in the case of a geometrical demonstration. The following anecdote, mentioned by Sir Walter Scott as authentic, shows how apparently forgotten facts may be revived by an un-

They can be explained by reference to

(1) acquired habits,

(2) which work infallibly and successfully during sleep,

(3) when there are no distracting circumstances

Divination and prophecy by somnambulists may similarly be explained

An illustration

usual heightening of brain-power under the influence of strong emotion —

"Mr. R., of Bowland, a gentleman of landed property in the vale of Gala, was prosecuted for a very considerable sum, the accumulated arrears of ^{the} ~~feudal~~ (or tithe) for which he was said to be indebted to a noble family, the titulars (lay impropriators of the tithes). Mr R. was strongly impressed with the belief that his father had, by a form of process peculiar to the law of Scotland, purchased these teinds from the titular, and, therefore, that the present prosecution was groundless. But, after an industrious search among his father's papers, an investigation of the public records, and a careful inquiry among all persons who had transacted law business for his father, no evidence could be recovered to support his defence. The period was now near at hand when he conceived the loss of his law suit to be inevitable, and he had formed his determination to ride to Edinburgh next day, and make the best bargain he could in the way of compromise. He went to bed with this resolution, and, with all the circumstances of the case floating upon his mind, had a dream to the following purpose. His father, who had been many years dead, appeared to him, he thought, and asked him why he was disturbed in his mind. In dreams men are not surprised at such apparitions. Mr R. thought that he informed his father of the cause of his distress, adding, that the payment of a considerable sum of money was the more unpleasant to him, because he had a strong con-

sciousness that it was not due, though he was unable to recover any evidence in support of his belief 'You are right, my son,' replied the paternal shade, 'I did acquire right to these teinds, for payment of which you are now prosecuted. The papers relating to the transaction are in the hands of Mr —, a writer (or attorney), who is now retired from professional business and resides at Inveresk, near Edinburgh. He was a person whom I employed on that occasion for a particular reason, but who never, on any other occasion, transacted business on my account. It is very possible,' pursued the vision, 'that Mr.—may have forgotten a matter, which is now of a very old date but you may call it to his recollection by this token, that, when I came to pay his account, there was difficulty in getting change for a Portugal piece of gold, and that we were forced to drink out the balance at a tavern'

"Mr R awaked in the morning, with all the words of the vision imprinted on his mind, and thought it worth while to ride across the country to Inveresk, instead of going straight to Edinburgh. When he came there he waited on the gentleman mentioned in the dream, a very old man ; without saying anything of the vision, he inquired whether he remembered having conducted such a matter for his deceased father. The old gentleman could not at first bring the circumstance to his recollection, but, on mention of the Portugal piece of gold, the whole returned upon his memory ; he made an immediate search for the papers, and recovered

them,—so that Mr. R carried to Edinburgh the documents necessary to gain the cause which he was on the verge of losing." (Notes to the new edition of the *Waverley Novels*, vol v)

(II) Somnambulism, though ordinarily implying sleep-walking, includes also writing, talking, singing, or playing on a musical instrument during sleep.

An illustration.

The reasons given above explain such phenomena,

(II) Somnambulism may be described as abnormal sleep, and, though it ordinarily implies sleep-walking, it includes also such phenomena as writing, talking, singing, or playing on a musical instrument during sleep. We may remember in this connection the case of Lady Macbeth after the murder of Duncan, and the following account, given by Dr. Abercrombie, may be read with interest—"A young nobleman, mentioned by Horstius, living in the citadel of Breslau, was observed by his brother, who occupied the same room, to rise in his sleep, wrap himself in a cloak, and escape by a window to the roof of a building. He there tore in pieces a magpie's nest, wrapped the young birds in his cloak, returned to his apartment, and went to bed. In the morning he mentioned the circumstances as having occurred in a dream, and could not be persuaded that there had been anything more than a dream, till he was shown the magpies in his cloak." The reasons given above are also of help here in accounting for such abnormal actions. We should also remember that the movements performed in such cases are of a reflex or habitual character. Even when an individual avoids, while walking in sleep, a person or an object standing in the way, he does so only by mechanical or reflex adjustment, his sensorium giving only a faint impression (due to

the partial alertness of some of the senses), which starts the series.

(III) Hypnotism implies an artificial sleep induced on a subject by another who continues to exercise his influence on him during such sleep whatever is suggested by the operator to the patient is taken by him to be real and he regulates his movements accordingly. The sleep is induced either by what are called magnetic passes or by fixing the attention of the eye upon a bright object.

The psychological explanation of the phenomenon of hypnotism may be found in the following :—

(1) It is believed that the hypnotic sleep is not perfect somnolency, affecting the entire system, but a partial torpor caused by a congestion of a particular organ and a limited portion of the brain (usually the eyes and the optic centres). We have seen that, even in natural sleep, all the sense-organs are not equally quiescent. It seems, therefore, that, in hypnotic sleep, while some of the senses are dull, others are rather acute. (2) Owing to prior fixation of attention, the patient is pre-eminently susceptible to the influence of the operator alone, whose voice is to him an effective signal for vigorous mental work. (3) As outer objects are shut out by the artificial sleep, the images suggested attain to unusual vividness (further intensified by concentration) and the patient is led simply by the chain of ideas supplied by the operator.

We may notice in this connection the remarkable phenomenon of what is known as *double* or *multiple personality*, often illustrated in hypnotism.

(III) Hypnotism is an artificial sleep induced on a person by another under whose complete influence he comes at the time

Psychological explanation of the phenomenon

Phenomenon of double personality or

alternating
consciousness

and of
multiple
personality

A hypnotized subject, though forgetting the experiences of a hypnotic trance when awake, remembers them during the next trance and thus weaves a connected tissue of hypnotic experiences, constituting, as it were, a second self by the side of his normal self or personality. The psychical energy in operation thus acquires a different meaning in the two cases by reference to the two distinct streams of consciousness. It is found that the physical conditions (of the pulse, respiration, digestion, excretory processes, etc) underlying the organic sensations in such cases are also different, and this, to a great extent, accounts for the two distinct lines of suggestion giving rise to such alternating consciousness or double personality. It is found also sometimes in certain forms of injury to the brain. At times a variable number of different personalities may develop in a given individual, the person living as many different lives, each being partly or wholly ignorant of the existence of the other. Such a phenomenon is known as *multiple personality*, and men are sometimes known to live in this way as many as four, six, or even ten lives. (*Vide Chap XVIII, § 4*)

The following instance, mentioned by Dr. Abercrombie, may be quoted in this connection as illustrating 'double personality' —

"The patient was a young lady of cultivated mind, and the affection began with an attack of somnolency, which was protracted several hours beyond the usual time. When she came out of it, she was found to have lost every kind of acquired

knowledge. She immediately began to apply herself to the first elements of education, and was making considerable progress, when, after several months, she was seized with a second fit of somnolency. She was now at once restored to all the knowledge which she possessed before the first attack, but without the least recollection of anything that had taken place during the interval. After another interval, she had a third attack of somnolency, which left her in the same state as after the first. In this manner, she suffered these alternate conditions for a period of four years, with the very remarkable circumstance,—that, during the one state, she retained all her original knowledge, but, during the other, that only which she had acquired since the first attack. During the healthy interval, for example, she was remarkable for the beauty of her penmanship, but, during the paroxysm, wrote a poor awkward hand. Persons introduced to her during the paroxysm, she recognised only in a subsequent paroxysm, but not in the interval, and persons whom she had seen for the first time during the healthy interval, she did not recognise during the attack." (*Intellectual Powers*, pp. 237-238.)

§ 5. Illusion and Hallucination. Illusion and Hallucination illustrate the baneful influence of Imagination on our estimate of things. We have seen that imagination in the form of representation is involved even in perception. When the representative factor is wrongly suggested or when, by its unusual vividness, it induces

The undue influence of imagination or representation on perception illustrates Illusion and Hallucination.

Difference
between
Illusion and
Hallucination,

a belief in its objective validity, we have illusions and hallucinations. The difference between illusion and hallucination lies in the fact that in the former there is some sense-basis, while in the latter there is none. Thus, when we mistake a cord for a serpent, a shadow for a ghost, the distant blue ocean for a dense forest, we have instances of optical illusion, but when our imagination conjures up realities, such as visions of dead friends or of long expected events, we have instances of hallucination. When an illusion or hallucination gets a strong possession of the mind, leading to a persistent belief in the corresponding object, we have what is called delusion, often illustrated in the case of the lunatic. When, for example, one labours under the impression that an evil spirit within him always prompts him to do what is wrong, or that the horizon is but the junction of the earth and the sky at a certain distance from him, he may be said to be under a delusion.

A persistent
Illusion or
Hallucination
is a Delusion

Difference
between
Perception
and Illusion

From the above account it is clear that both in perception and illusion there is a sense-impression, which sets imagination to work and thus leads it to supply other features usually associated with the impression. If proper representative factors are thus suggested, we have valid perception, but if, through wrong suggestion, inappropriate elements are recalled, leading to false perception, we have illusion. "Perception," as Robertson says, "*is verifiable* imagination on occasion of sense-stimulation, Illusion is unverifiable." Wrong suggestion connected with illusion should be distin-

guished from wrong suggestion connected with memory by the fact that in the one the representative factors are viewed as parts or features of the object of which the present sense-impression is a part, while in the other these are regarded as distinct from the object perceived by sense at the time. Illusion may be due either (*a*) to objective circumstances, that is, features presented to the mind, or (*b*) to subjective conditions, that is, temperament or tendency of the mind at the time (*a*) When, for example, we are seated in a running train, the posts and buildings seem to fly past us, owing to the quick succession of retinal impressions This succession we naturally attribute to the movement of the objects, since the absence of muscular experience suggests that the succession cannot be due to our own movement Similarly, (*b*) illusions due to subjective conditions are illustrated when we seem to see a train move which we have been eagerly expecting to start, or when we mistake the voice of a stranger for that of a friend for whom we have been anxiously waiting. Illusions, whether due to subjective or objective conditions, are found in connection with all the senses, though they are more frequent with regard to sight and hearing A familiar tactal illusion is described by Aristotle when the middle finger is twisted round the index finger and a small object, such as a marble, is placed between them, the object seems to be double, instead of single. It is evidently due to the unlike local significance of the anterior and posterior parts

Difference
between
Illusion and
Memory

Illusions may
be due to
(*a*) objective
or
(*b*) subjective
conditions

Illustrations.

of the finger, which are ordinarily stimulated only by *different* objects *at the same time*. Likewise, the temperature of a quantity of water, which seems to be hot to one hand, may seem to be cold to another, if its temperature be higher than that of the other hand.

Hallucinations may be due to morbid nervous conditions or undue mental agitation.

An illustration

Hallucinations, as mentioned above, are extreme errors caused by excited imagination. And this may be due either to morbid nervous conditions, such as we find in the case of the insane, or to undue mental agitation caused by violent emotions, such as we find in a Maid of Orleans. Diseases and drugs often cause them, such as the delirium of fever, or the administration of hemp, opium, or stramonium. The following account recorded by Nicolai of Berlin may be of some interest to the student here —

"During the latter six months of the year 1790, I had endured griefs that most deeply affected me. Dr. Selle, who was accustomed to bleed me twice a year, had deemed it advisable to do so but once. On the 24th of February, 1791, after a sharp altercation, I suddenly perceived, at the distance of ten paces, a dead body, and inquired of my wife if she did not see it. My question alarmed her much, and she hastened to send for a doctor. The apparition lasted eight minutes. At four in the afternoon, the same vision reappeared. I was then alone. Much disturbed by it, I went to my wife's apartments. The vision followed me. When the first alarm had subsided, I watched the phantoms taking them for what they really were—the results

of an indisposition. Full of this idea, I carefully examined them, endeavouring to trace by what association of ideas these forms were presented to my imagination I could not, however, connect them with my occupations, my thoughts, or my works On the following day, the figure of the corpse disappeared, but was replaced by a great many other figures, representing sometimes friends, but more generally strangers. None of my intimate friends were among these apparitions, which were almost exclusively composed of individuals inhabiting places more or less distant I attempted to produce at will persons of my acquaintance, by an intense objectivity of their persons ; but although I could see two or three of them distinctly in my mind, I could not succeed in making exterior the interior perception, although I had before seen them afresh when not thinking of them. The disposition of my mind prevented me from confounding these false appearances with reality

"These visions were as clear and distinct in solitude as in company—by day as by night—in the street as in the house , they were only less frequent at the houses of others. When I closed my eyes they sometimes disappeared, although there were cases in which they were visible , but so soon as I opened them, they re-appeared immediately. * *

"About four weeks afterwards, the number of these apparitions increased. I began to hear them speak. Sometimes they conversed together, but more generally addressed their conversation to me, which was brief and agreeable At different times

I considered them as tender friends, who sought to soften my griefs

"Although at this period I was well, both in body and mind, and these spectres had become so familiar as not to cause me the slightest uneasiness, I nevertheless endeavoured to dispel them by suitable remedies. It was resolved that an application of leeches should be made, which was accordingly done on the 20th April, at 11 A.M. The surgeon was alone with me. During the operation, my chamber was filled with human figures of all kinds. This hallucination continued uninterruptedly until half after four, at which time digestion commenced. I then observed that the movements of these phantoms became slower. They shortly began to grow paler, and at seven o'clock, had become perfectly white. Their movements were rather more rapid, although their forms were as distinct as before. By degrees they became more misty, and appeared to melt into air, although some were still apparent for a considerable length of time. By eight, the room was entirely cleared of these fantastic visitors. Since then I have several times thought that the visions were about to return, but they have not". (*Nicholson's Journal* vol vi, p. 161.)

Thus,
Illusion,
Hallucination,
Delusion, and
Reverie
illustrate

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Thus, we see that Illusion, Hallucination, Delusion, and Reverie—all illustrate extravagant exercises of Imagination or Fancy, which in an elevated form is exemplified in the creations of the poet. Shakespeare well observes—

"The lunatic, the lover, and the poet,
 Are of imagination all compact :
 One sees more devils than vast hell can hold ,
 That is, the madman , the lover, all as frantic,
 Sees Helen's beauty in a brow of Egypt ;
 The poet's eye, in a fine frenzy rolling,
 Doth glance from heaven to earth, from earth to
 heaven,

And, as imagination bodies forth
 The forms of things unknown, the poet's pen
 Turns them to shapes, and gives to airy nothing
 A local habitation, and a name."

§ 6. Analysis of Imaginative Construction. Constructive imagination is a progressive mental exercise having certain stages. These are —

(1) The first condition of constructive imagination is that *sufficient materials be recalled*. *production must be based on reproduction* If we fail to remember the elements, we cannot possibly construct a new image. And it is to be remembered in this connection that systematic observation favours the revival of appropriate elements, which in their turn facilitate construction.

(2) The second stage in the process of constructive imagination is illustrated in the formation of a first *draft image* by the laws of association. This draft image is, no doubt, a crude specimen , but still it is a nucleus on which the mind works in order to develop the proper image. It is spon-

Constructive
Imagination
involves the
following
steps :

(1) Revival of
materials,

(2) the
formation of
a draft-image
by the laws of
association,

taneously brought about by the suggestive forces by reference to the requirements of a case

^{and}
 (3) modification introduced into the draft image by a sense of fitness, which determines the excellence of construction.

(3) The third or the last stage in the constructive process consists in the modification or improvement introduced into the draft image to make it perfect. When, for example, a person wants to invent an air pump, first a crude image is formed by the laws of suggestion. Then, by adding to or subtracting from this crude image, it is gradually improved until it seems to serve the purpose. This last stage illustrates prominently the active form of imagination, while the second stage illustrates rather the passive form. And it is apparent that they are not altogether distinct, but are closely connected. It is to be distinctly borne in mind in this connection that *the excellence of construction always depends on the nicety of judgment or the sense of fitness of what is wanted*. If a person, for example, has a better judgment, his construction will naturally be superior to that of another whose judgment is comparatively defective or incorrect.

§ 7 Directions of Imaginative Activity.

Constructive imagination may serve different ends. In certain cases imagination (I) is exercised for the attainment of knowledge. This is known as *Intellective Imagination*. (II) In other cases, the exercise of imagination may subserve the end of feeling. And the most prominent instance of such an exercise is to gratify the aesthetic sentiment. This is known as *Aesthetic Imagination*. (III) In other cases imagination may be

By reference to ends
 Imagination may be viewed as
 (I) Intellectual,
 (II) Aesthetic,
 or (III) Practical

exercised for the production of a desired result. This is prominently illustrated in Invention. This form of imaginative exercise is called *Practical Contrivance*.

(I) *Intellective Imagination* When construction subserves the end of knowledge, it is called intellective imagination. It is illustrated in the *receptive form* in learning, or deriving information from others. In following a description we have to construct an image corresponding to what is described. In the *creative form*, intellective imagination is illustrated in framing new images or ideas by combining elements derived from past experience. When a poet supplies a simile or a metaphor, he exercises imagination in the creative form. The reader, however, in understanding the simile or metaphor, exercises imagination of the receptive form. Intellective imagination is useful as much in the ordinary affairs of life as in the discovery of scientific truths. To learn is to acquire information, which is at least partly new. Thus, *to learn is to employ not merely the memory but also the imagination*. We must remember that the success of imaginative exercise depends, to a great extent, on the revival of appropriate images.

It may be mentioned here that, in verbal description, the exercise of imagination is usually of a synthetic character. A composite image is formed in such a case by a combination of several elementary images or notions. Language is, in its nature, general or abstract. Any word which we may employ refers to a quality or a group of

(I) Intellective Imagination subserves the end of knowledge. It is illustrated in the receptive form when we learn new things from others, and in the creative form when we form a new image ourselves without any extraneous help

As language is in its nature general, verbal description ordinarily involves an exercise of synthetic imagination

qualities to be found in several objects Colour, redness, tall, good, etc., are all words suggesting general qualities The aim of every description is to combine several representations suggested by different words with a view to produce a concrete effect A man, for example, may be described as tall, fair, thin, having beard or bald head, etc In such cases, abstract notions are combined to produce a concrete image This is called by Bain '*concreting the abstract*'

Even in *Science*, when we try to realize the conjunction or disjunction of atoms, or molecular movement in heat, we exercise our imagination. Scientific discovery , is almost always aided by hypotheses , and hypotheses are framed by an exercise of imagination Science, no doubt, is concerned with generalities rather than with individual peculiarities , but the formation of general notions or truths is furthered, to a great extent, by the materials supplied by memory and imagination

Imagination is exercised in science in understanding subtle elements or activities and in explaining phenomena by means of hypotheses

(II) *Aesthetic Imagination* subserves the end of the sentiments of beauty and sublimity

(II) *Aesthetic Imagination* When construction subserves the end of feeling, specially the æsthetic sentiment, it is known as æsthetic imagination Usually, no doubt, imagination is exercised for the gratification of the æsthetic sentiment , but this does not mean that imagination is always so exercised. It may be exercised for the gratification of some other feeling or emotion. Sympathy, for example, is based, to a great extent, on imagination In order to enter into the feelings of others, we must, by an exercise of constructive imagination, realize their experience.

Two peculiarities of æsthetic imagination should be noted —(1) Under the influence of feeling, the image becomes specially vivid or clear so much so that it may at times give rise to an illusion or even a hallucination. (2) Combination of ideas is determined, to a great extent, by the character of the feeling present in our mind, every feeling tends to revive allied images which serve to support or intensify it. Thus, a pleasurable condition of mind would suggest agreeable thoughts, while a painful condition would suggest painful ones. In certain cases, therefore, constructive imagination is exercised to paint beautiful and joyous experiences; while, in other cases, objects of fear or terror are conjured up by it.

Æsthetic imagination has been described as *essentially an idealizing process*. It means that the poet or the painter, being guided by æsthetic imagination, is led to construct a world transcending the actual. The heaven, hell, or fairy-land is a product which embodies perfection or the reverse to the extreme limit, not to be found in the mixed experiences of this life. All the objects presented in experience are more or less imperfect specimens of beauty or deformity. The products of æsthetic imagination, on the other hand, are, to a great extent, characterized by purity in the matter of excellence or defect. Thus, the products of æsthetic imagination are ideals painted by fancy and scarcely approached by actual objects.

Two
peculiarities
of *Aesthetic*
Imagination :

(1) Through
the influence
of the feelings
the images
are very vivid
and clear.

(2) Only
those
ideas which
tend to
support the
feeling present
in our mind
are brought
before it and
combined
Thus, the
constructions
are rather
partial

and ideal

"Do what he will, he cannot realise
 Half he conceives—the glorious vision flies,
 Go where he may, he cannot hope to find
 The truth, the beauty pictur'd in his mind"

(III) Practical Contrivance implies that Imagination serves the ends of action

In a receptive form it is illustrated in the imitative execution of complex movements, while in a creative form it is illustrated in invention

Imagination, controlled by reason, leads to discoveries, inventions, and explanations of difficult problems, but, when uncontrolled, it turns out to be injurious

(III) *Practical Contrivance* When constructive imagination subserves the ends of action, it is called practical contrivance. It is illustrated in the *receptive form*, when a child attempts a new movement by *imitating* the movements of others. Here the complex movement is suggested by an act performed by another. When, however, a child has to strike out a new form of movement, without being aided by an example, practical contrivance of the *creative type* is illustrated. This creative form is especially prominent in what is called *invention*.

§ 8 Uses and Abuses of Imagination
 The proper use of an organ or faculty is to exercise it in connection with other organs or faculties. The mutual relation of the different organs or faculties serves as a check against the extravagant exercise of any one of them in any direction. Thus, sight not controlled by touch, or touch not corrected by hearing, imagination not controlled by reason, or reason not regulated by observation, often turns out to be not merely useless but also mischievous. And the faculty which is specially concerned with the discernment and due adjustment of relations is Intelligence or Reason. Hence its regulative function is essential to the healthy and successful exercise of the different organs and faculties. Imagination, accordingly, when not controlled by reason or intelligence leads to extravag-

gant representations or even to day-dreaming. But, when imagination is guided by intelligence, or a sense of what is probable and consistent, it is an important aid to knowledge or discovery. Hypothesis in science should be framed by reference to previous experience and the constitution of the world as revealed to us. If such a hypothesis is framed without any check from reason, it becomes mere idle speculation.

The uses of imagination, as shown above, are illustrated not merely in science, but also in the concrete affairs of life. To acquire correct information and learn new things, we are to exercise our memory and imagination as well. The uses of imagination are no less patent in art and religion. The engineer in devising a new building or bridge, the painter in delineating the features of perfect beauty, the musician in striking out a new musical composition, the navigator in discovering a new passage, the statesman in introducing new measures, the manufacturer in inventing new articles or machines, and the theist in representing God and His attributes, have all to remould the materials supplied by past experience under the guidance of reason.

If a duly regulated imagination is thus of great value, an unruly imagination is a source of great mischief to our mental and moral nature. Idle and visionary schemes often lead to vain pursuits and the consequent dissipation of energy. Luxury and sensuality can frequently be traced to the demands of depraved imagination rather than

The exercise
of Imagination
is required in
every sphere
of life.

Extravagant
and improper
exercises of
Imagination
dissipate
energy and

to the legitimate wants of our system. Hence we find that the brutes in these respects occupy a more favourable position than we their wants and enjoyments are mostly limited to the present, while we, by forecasting new possibilities of gratification, often vitiate our tastes and degrade our lives We may mention, in this connection, the growing vice of novel-reading, which not infrequently introduces imagination into unholy regions and thereby inflames the passions and ruins our moral nature. Moreover, one who constantly feeds on light literature can seldom grow intellectually strong, since the habitual bent of his mind is in the direction of what captivates the imagination instead of what appeals to reason. One living only upon soft articles of food is rarely disposed to chew hard substances which strengthen the teeth , one content with a surface-view can never be led to go deeper Similarly, one who indulges only in concrete pictures, can hardly find pleasure in abstract thinking

undermine
moral
strength.

Vice of novel-
reading
Due cultiva-
tion of
Imagination
is essential to
sound
education

§ 9. Culture of Imagination. The due cultivation of Imaginative Faculty is an indispensable condition of sound education Children very early in life begin to exercise this faculty. As soon as some materials are stored up in the mind, children take delight in compounding and re-compounding them. The imagination of children, however, assumes an extravagant character owing to the want of adequate experience and the absence of sound judgment A doll, to a girl, is a charming baby , and a log of wood to a boy is a prancing

horse. Folk-lore, fairy tales, and nursery rhymes—all tend to feed this tendency. And it would seem that Imagination would run riot, when Reason begins to exercise its wholesome check on it. The daylight of reason, as Compayre well observes, appears soon enough to dissipate the shadows and phantoms of early imagination. And children now take greater interest in what's possible than in the mere fanciful.

It is well that the vivacity of early imagination should be preserved, but that it should be duly controlled. We should remember that even the formation of general notions is aided by imagination, reproductive and productive. Scientific conceptions of force, atom, smooth surface, fluidity, etc., can be adequately formed only with the help of constructive imagination. Hence its proper regulation is of immense value to sound training. To duly cultivate this faculty, we should well regulate all those factors which enter into its exercise; and this would involve the following steps —

(1) *Careful and Accurate Observation.* To ensure the construction of an appropriate image we must be able to reproduce the proper materials, which can be done only when accurate knowledge has been gained by careful and systematic observation. Hence the points of difference and similarity, the relation of parts and their exact character, should be noted with precision in every case. Sound observation is the only secure foundation of faithful revival and healthy exercise of imagination.

(2) *Cultivation of Judgment and Control of Suggestive Forces.* To reproduce the appropriate ma-

Children gradually learn to control their early extravagant exercises of imagination by a sense of what is possible and probable.

The due cultivation of Imagination involves—

(1) careful, accurate, and systematic observation for storing the mind with suitable materials ;

(2) cultivation of judgment and control

of suggestive forces for the due regulation of Imagination ,

terials, the guiding sense of fitness should be duly cultivated by reference to both the formal and material conditions of knowledge. And, by the development of the power of concentration and the feeling of sustained interest, we should check the tendencies to divergent suggestion and thus recall the materials wanted on any occasion

(3) *Cultivation of Receptive Imagination* The first step in the regulation of imagination must be the cultivation of the receptive form by means of descriptions, tales, and imitation To this end the study of history, biography, geography, travels, should be encouraged

(4) *Improvement of Taste* To refine and strengthen judgment, the aesthetic and moral sentiments should be brought to bear on imaginative activity. The study of polite literature may be helpful in this direction

(5) *Encouragement of Active Construction.* The exercise of creative imagination should be encouraged within legitimate limits, as it is the chief instrument of discovery and invention And, in this respect, simple construction should first be attempted before more complex and elaborate constructions are undertaken. We should remember that the due cultivation of imagination refines and elevates the mind, bringing it peace, contentment, perfection, and happiness.

"The beings of the mind are not of clay ,
Essentially immortal, they create
And multiply in us a brighter ray
And more beloved existence "

{ Due cultivation of Imagination refines and elevates the mind

{ (5) furtherance of active construction within legitimate limits

{ (4) improvement of Taste by the study of polite literature ,

{ (3) cultivation of receptive imagination by means of descriptions, tales, imitation ,

§ 10. Exercises.

1. Explain clearly the relation of Imagination to Memory. Show that Imagination is required in (a) the student of history, (b) the captain of a cricket team, (c) the manager of a railway.
2. Set out the various uses of the term 'Imagination' and trace the relation among them.
3. Analyse the process of Constructive Imagination and distinguish the various forms of construction. What limits are there to the power of construction?
4. "Imagination and memory are but one thing, which for divers considerations hath divers names. Much memory is called experience." (*Locution*.) Point out how far these statements are true, and in what respects they are incomplete.
5. Distinguish between (a) Passive and Active, and (b) Receptive and Creative, Imagination. Is there any fundamental difference between what is called the Creative Imagination and the ordinary operations of Imagination?
6. How would you explain the extraordinary liveliness of Imagination in youth? How should Imagination be cultivated?
7. Explain the difference between imagining and remembering that you were at a particular place at a particular time yesterday.
8. What part does Imagination play in scientific investigation, and what, if any, are the limits within which its use in science is helpful and legitimate?
9. Distinguish between the modes of action of Imagination in Reverie, Artistic Creation, and Scientific Discovery.
10. Discuss the use and abuse of the Imagination in reference to the progress of Science and Religion.
11. Comment on Dugald Stewart's doctrine, that Imagination is always accompanied by a momentary belief in the real existence of that which is imagined. What application does the doctrine find in the case of Dreams.
12. Define Illusion and Hallucination, and name the psychical and physical conditions of each. How far is

the study of abnormal perception fitted to throw light on the nature of normal perception ?

13 Exhibit the relation of Imagination to Intellect and Feeling. What are the uses of Imagination in Religion, Art, and Science ?

14 Describe the characteristics by which impressions may be distinguished from Images, mentioning the circumstances under which one or more of these distinctions fail, so that hallucination results.

15 If a man is watching a train about to start, and is vividly expecting its movement, he may fall into the illusion that it begins to move before it actually does so. How would you explain such an error ?

16. How would you distinguish Illusion from (a) After-images, (b) Hallucination, (c) Dream Phantasms ? What are the principal sources of the ideas making up dream experience ?

17. Indicate the principal ways in which Imagination may be exercised ? What do you understand by Fancy ?

18. Distinguish the following Retentiveness, Memory, Recollection, Imagination, Fancy, Hallucination, Illusion, Delusion

19 How would you explain the seeming reality of Dreams ? It is a common experience in dreaming to find that slight sensations have appeared with greatly exaggerated intensity. Can you account for this, or mention any psychological facts which suggest an explanation ?

20 Give the distinctive features of the mental states known as Reverie, Somnambulism, Double and Multiple Consciousness. Have you any explanation to offer of these and cognate states ?

DIVISION III.

RE-REPRESENTATIVE COGNITION . PROCESSES OF THOUGHT.

CHAPTER XII.

CONCEPTION.

§ 1 Thought as an Elaborative Faculty.

We have hitherto confined our attention to the examination of the comparatively simple exercises of Intelligence, *viz*, either the presentation or representation of concrete or individual objects. As, however, these objects are too numerous to be separately remembered and besides they are not of much value in the systematization of experience, we naturally try to reduce them to system by reference to their prominent points of similarity and difference. Hence a higher or severer exercise of intelligence is called into play in arriving at general notions or representations of classes.

General Notions or Concepts should at the outset be distinguished from Percepts and Images. While percepts and images have to do with individual objects, concepts have to do with classes ; the one is concerned with the concrete, while the other with the abstract. And, as it is an easier exercise of Intelligence to take notice of individual or concrete objects in their entirety than to arrive at general ideas by reference to their common features or qualities, Thought, which is concerned

As concrete objects cannot be individually remembered, Thought aims at reducing them to system by forming general notions or concepts

Percepts, Images, and Concepts distinguished,

with the latter, is evidently a higher or more complex form of intellectual exercise than Perception, Memory, or Imagination. In perception there is the knowledge of an object affecting our senses at the time, while in memory or imagination there is the image or representation of an absent object, either as it was experienced before or in a modified form. But in all these psychoses the experience is restricted to an individual or concrete object, presented or represented, while in conception the experience is concerned with the general idea* alone.

though they
are closely
connected
with one
another.

Though, however, Percepts, Images, and Concepts are thus distinct from one another, yet they are closely connected. Percepts, unless of the character of very vague impressions, involve the employment of concepts by reference to which they are interpreted or construed. Thus, in perceiving an object, we say it is a tree, book, planet, or coin. Without notions or concepts there may at best be bare *apprehension*, but no *comprehension* in the proper sense of the term, and the more accurate the conception, the more precise the perception. In fact, what is known as illusion is but the wrong application of a concept and so a misconstruction of a present sense-impression. (*Vide Chap XI, § 5*) A difference in perception in any case, therefore, illustrates generally the

* The word 'Idea' is a generic term standing for any representation, whether of an individual or of a class. 'Image' and 'Concept' or 'Notion' are specific terms standing for the representation of an individual and a class respectively. Thus, we talk of the image of John or of the sun, the concept or notion of man or horse, and the idea of John or of man. (*Vide Principles of Logic, I, p 19*)

employment of different concepts for the interpretation of a sense-datum suggesting different representative factors to different minds.

Images, as already explained, are but representations of percepts. Concepts, as representations of classes, illustrate prominently the assimilative function, while percepts illustrate a prominent exercise of discrimination. "In perceiving," says Prof. Robertson, "I am marking off on the ground of difference; in conceiving I am bringing together on the ground of likeness." (*Psychology*, p. 172.) And this implies that the universal element is rather merged in the particular in the case of perception, while this element stands out clearly in the case of conception. As Prof. Stout observes, "In perception universal and particular are indistinguishably blended, the universal element lies entirely in the bare fact that the particular is recognised. Now the essential character of conception is that in it the universal is thought of as such, in contradistinction to the particular, implicit in the percept, it is explicit in the concept," (*Analytic Psychology*, II, pp. 173-174.)

Concepts involve a prominent exercise of assimilation; while percepts, discrimination.

§ 2. Nature and Forms of Thought. Thought evidently is an active process of intellectual synthesis based on comparison. It involves a vigorous exercise of attention which surveys the different objects compared with a view to gather the features which are common to them. Thinking thus always implies conceiving. "The thinking process," writes Mansel, "may be adequately defined as the act of knowing or judging of things

Thought is essentially an active process of intellectual synthesis, involving a severe exercise of attention.

Thinking always implies the use of concepts,

by means of concepts." (*Prolegomena Logica*, p. 22.) It is, thus, not merely an association of ideas, as supposed by empiricists; it implies, on the other hand, "the re-action of the mind on the materials supplied by external influences" (Lotze, *Logic*) The materials on which the mental activity is exercised in thought are, however, mostly representative in character. For, even when several actual objects are compared to arrive at a general notion, all of them cannot be simultaneously present before the mind, so that while some are perceived, others are remembered. Hence Thought or (conceptual) Thinking has been called by Spencer as essentially *re-representative* as images or representations are derived from percepts, so concepts or re-representations are derived from images which are re-representative in character.

Thought is illustrated in three forms, viz., Conception, Judgment, and Reasoning, which, however, indicate rather a logical than a psychological division

Thought is illustrated in three forms (a) Conception, (b) Judgment, and (c) Reasoning. In all of them we use general notions; the predicate of a judgment is ordinarily a concept or a notion. This distinction of conception, judgment, and reasoning is, however, rather a logical than a psychological one. Logic, as concerned with mental products, notices the difference between conception and judgment, and judgment and reasoning. Judgment as a combination of concepts is more complex than these, and inferences being combinations of judgments are more complex than the latter. But in psychology the distinction is scarcely tenable. Psychology is concerned with mental processes; and, as mental processes, conception, judgment, and reasoning involve the exercise of

the same fundamental intellectual functions—assimilation and discrimination, analysis and synthesis (comparison), implying the use of general ideas. In fact, conception, as a mental process, ordinarily presupposes judgment; and judgment presupposes inference: the connotation or meaning of a concept is formed by successive judgments; and most of our judgments are the results of inferences. Though psychologically there is no valid ground for regarding conception, judgment, and reasoning as distinct mental processes, yet for the sake of scientific convenience the logical distinction may be adopted, and conception, judgment, and reasoning may be explained under separate heads.

§ 3. Conditions of Thought : Analysis and Comparison The exercise of Thought is favourable under certain conditions. In thought we are to turn our attention from individual peculiarities and direct our attention to the common features. Thus, Thought involves (I) Analysis or Abstraction and (II) Synthesis or Comparison.

(I) *Analysis.* Analysis or abstraction is but an aspect of differentiation or discrimination. It is illustrated in an elementary form in isolating attention; while in a more complex or difficult form it is known as abstraction. When, for example, we turn our attention away from attractive and impressive peculiarities, we exercise discrimination in a prominent form; and the mental process is described as abstraction. Analysis or abstraction is favoured by certain conditions or circumstances—

Thought involves
(I) Analysis
and (II)
Comparison.

(I) *Analysis*
is but an
aspect of
discrimina-
tion and is
illustrated
either in an
elementary
or in a com-
plex form.

Conditions
favourable to

analysis or abstraction.

(1) external (such as local or temporal separation) and (2) internal (such as special interest in certain features or familiarity with them).

(II) Synthesis or Comparison is illustrated either with regard to the external relations of space, time, or quality, or with regard to the internal relations of similarity and difference

(II) *Synthesis*. Synthesis or Comparison is illustrated at times with regard to (a) spatial, (b) temporal, or (c) qualitative aspects of things, as in determining the relative situations or positions of objects or their parts and features. These, however, include merely the external circumstances of comparison. The internal relations of similarity and difference really form the true ground of comparison. And these internal relations constitute the special province of thought often do we compare objects with regard to their points of similarity or dissimilarity in forming general ideas.

Analysis and Comparison are interconnected.

Analysis and Comparison are very closely connected with each other. Analysis often presupposes comparison. For example, when we distinguish between the colour and the sound of an object, we must know colour as such and sound as such previous comparison must have familiarized us with the colour as well as with the sound before we can disengage the one from the other. Again, comparison often follows analysis when, for example, some striking feature of an object attracts our notice, its notion is rendered precise and definite by thought. And generally comparison involves analysis To compare objects is to be aware of the feature or features in respect of which they are compared.

Things may be compared either with regard to their external relations, as mentioned above, or

with regard to the internal relations of similarity and difference. Comparison, as entering into thought, implies the detection of the relations of similarity and difference. These two, however, go together to detect similarity is to recognise the points of likeness prominently and the points of difference vaguely , to detect difference similarly implies the recognition of dissimilarity in a prominent form and of similarity in a vague form.

Comparison as essential to Thought implies the detection of similarity and difference.

The circumstances or *conditions* favouring comparison are (1) objective and (2) subjective. (1) The external or objective conditions are—(a) strength or intensity of the factors compared, (b) distinctness and prominence of the ground of comparison, (c) juxtaposition in time and space, and (d) persistence of the factors compared. Moderate intensity, clearness of impression, its duration for a certain time are all favourable to comparison. And when things are placed side by side, locally or temporally, they can very easily be compared. In many cases, as in comparing weights, successive presentations are more favourable than simultaneous ones. (2) The internal or subjective conditions are—(a) a vigorous condition of the brain and the mind · an exhausted psycho-physical condition is unfavourable to comparison , (b) a well-practised faculty of concentration generally, and specially with regard to the phenomena compared , (c) interest in the materials compared and previous familiarity with them ; and (d) pre-adjustment of attention to the ground of comparison.

Conditions favourable to comparison .
(1) objective conditions

and (2) subjective conditions.

Individuals vary with regard to the tendency Individual

peculiarities
and tendencies
illustrated in the
comparison
of objects

to discover similarity or difference. (a) some are prone to detect similarities; (b) others, to detect differences. Again, things may be compared either (a) for the sake of knowledge, or (b) for the gratification of feelings, or (c) for some practical end. The scientist, for example, may compare objects for the acquisition of knowledge, the poet or the artist for the gratification of the feelings, and the mechanic may compare objects for practical purposes, such as invention.

Comparison involves
Abstraction
and
Generalization.

§ 4. Abstraction and Generalization. Comparison, as mentioned above, is essential to Thought. But comparison always involves Abstraction and Generalization in a more or less prominent form. In comparing objects, we abstract or turn our attention away from certain features and direct it to others. Thus, we may compare objects in respect of their form or size to the exclusion of their colour or sound. But, in so doing, while we abstract, we also generalize, in as much as we view form or size as a quality which may indifferently be possessed by several objects of a group. Thus, abstraction, generalization, classification, and conception are all interconnected (*Vide Principles of Logic*, Vol II, Chap. XXVI, § 5.)

Abstraction,
generaliza-
tion,
classification,
and concep-
tion are all
inter-
connected.

(a) Some hold
that Abstrac-
tion precedes

It is a vexed psychological question whether Abstraction precedes Generalization or Generalization precedes Abstraction. (a) Some are disposed to hold that Abstraction is possible without Generalization. It is said that mere non-attention to certain features may be present without an

explicit attention to other features. "Thought", writes Robertson, "is generalisation by way of abstraction. Abstraction is the means by which we arrive at generality. But 'abstract' and 'general' are not the same. We cannot get generalisation without abstraction, but we can get abstraction without generalisation" (*Psychology*, p. 169) It is, however, questionable whether the mere negative aspect of attention may be present without its positive aspect withdrawal of attention from certain objects or aspects is possible only by the direction of attention to other objects or aspects.

[*Vide Chap VI, § 3] (b)*] It has, accordingly, been urged by others that Generalization is possible without Abstraction we may, it is said, be vaguely conscious of some cardinal or prominent points of similarity among objects without an explicit withdrawal of attention from their distinguishing features "In one sense, indeed," writes Mansel, "it might be said that our cognition of the class is prior to that of the individual. For, in the development of consciousness by the aid of language, resemblances are noticed earlier than differences; and even the names distinctive of individuals are at first associated only with their generic features. Children, says Aristotle, at first call all men *father*, and all women *mother*, but afterwards they distinguish one person from another." (*Metaphysics*, pp. 216-217) The fact is that in all clear and distinct consciousness the two processes of Abstraction and Generalization, which are but intensified forms of discrimination and assimilation, are implicated in

while (b)
others
contend that
Generaliza-
tion precedes
Abstraction.

As a matter
of fact, in all
clear
conscious-
ness,

they are implicated in one another, though vague Generalization may possibly precede Abstraction.

Conception and Classification are but the subjective and objective aspects of the same mental exercise

one another. But if we are disposed to raise the question of priority by reference to the prominent feature characterizing a psychosis, then it would seem Generalization in an impressive form may be present with but a dim background of differentiation, which can hardly be called Abstraction. (*Vide Chap. V, § 1 and § 4.*)

§ 5 Conception and Classification As mentioned in the last section, Conception and Classification are merely different aspects of the same psychical process: whenever we bring an object or a group under a definite class, we do so only by means of the appropriate notion or concept, and whenever we form a concept, we evidently mean that all objects which it represents may be brought under it. They are thus but different expressions of the same mental exercise,—the one referring rather to the subjective side, while the other to the objective.

It may be mentioned in this connection that, situated as we are in society, Conception and Classification are seldom left merely to the personal efforts of individuals. Social intelligence, working through language, helps every individual from his early life in the classification of things and the formation of concepts. A child, for example, is taught the names of things, and when the same name is applied to different objects having marked features of similarity, the child is led to discover them easily. Had the child been left to itself, its ideas would have been very rudimentary, and its mental development would have been retarded to a very

Conception and Classification are generally the outcome not merely of individual effort but also of the influence of social intelligence on it

great extent. Conception and classification are thus to be viewed as dependent not merely on individual effort, but, to a great extent, on social environment.

§ 6 Formation of Concepts The formation of a concept or general idea is a comparatively difficult process. (a) The first step towards such a result is to be found in generic images. A generic image is a complex representation due to cumulative assimilation. When several similar objects are presented to the mind of the child, their impressions have the effect of obliterating differences and rendering prominent the like features. It may be likened to the super-imposition of the photographic impressions of several objects belonging to a class, when the individual peculiarities are blurred and the common features stand out in relief. Generic images, however, are not accompanied by a consciousness of their generic significance. (b) Such a consciousness is added when the points of difference among the objects compared are comparatively prominent. Then, by an effort of attention, we have to turn our mind away from the individual peculiarities and direct it to the common features. Thus, abstraction is essential to the developed concept. A notion thus formed is accompanied by a consciousness of its generic reference.

It may be mentioned in this connection that comparison underlies (1) the detection of individual identity as well as (2) the formation of general ideas. (1) To recognize an individual as the

The first step in the formation of a concept is the generic image

and the second step is conscious abstraction, which enables us to distinguish the points of similarity from those of difference.

Comparison is essential to form an idea of

individual identity and of a class

same involves comparison of the different impressions produced in us by it on different occasions and the detection of similarity in the midst of differences. (2) A general idea similarly involves comparison of different objects and the detection of the points of their likeness. In fact, in the infant mind, these two processes run on side by side, the development of the one reacting upon the other. Thus, an adequate idea of an individual involves the concept, and a clear concept implies similarly a definite knowledge of individuals.

Logical generalization is an ideal process involving, several steps

The process of generalization as described by the logician is rather an ideal process, which is illustrated in adult life. Such a process includes (1) observation of individual objects, (2) analysis of them into their constituent qualities, (3) comparison, (4) abstraction, (5) detection of the points of similarity (formation of the concept), and (6) associating a name with the concept formed.

The controversy relates to the characters of a general idea

§ 7 Realism, Nominalism, and Conceptualism These terms relate to a controversy regarding the nature of general ideas. The realists hold—that corresponding to a general notion—there is a reality characterized by the common features alone. For example, corresponding to the general notion 'man', there is, according to this view, an objective existence illustrating merely the common and essential features of humanity. This reality, according to the realist, is to be found not in the world of sense but in the world of reason. Plato, the father of Realism, affirms the existence of a world of ideas—arche-

The realists maintain that there is an objective or extra-mental reality corresponding to a general idea

types of the objects of sense. The ideas or concepts, according to the Realists, are the eternal verities, the impress of which is to be found on the different classes of objects moulded according to them. (*Vide* Plato's *Republic*, Book VII.)

Nominalists deny the presence of an objective reality corresponding to a general notion or idea. The name alone, according to them, is general; it can indifferently be applied to this, that, or some other individual object belonging to a class indicated by it.

Conceptualists hold that, though there is no reality corresponding to a general idea, yet the mind can represent in imagination the common features alone divorced from individual peculiarities. Locke, for example, argues that corresponding to the notion 'triangle' we represent in imagination a figure bounded by three lines, not considering whether these are all equal, or all unequal, or only two equal.

The conceptualistic position is assailed by nominalists on the ground that the mind has not the power of representing the common features alone. Every image, it is urged, must be the representation of an individual object. Berkeley, for example, remarks that it is impossible for the mind to represent a triangle the sides of which are neither long, nor short, nor black, nor white, nor all equal, nor all unequal, nor any two equal. The name 'triangle' alone is general, in as much as it can indifferently be applied to this, that, or any other individual triangle.

The nominalists hold that the name alone is general.

Berkeley.

Conceptualists contend that it is possible for the mind to form general ideas. Locke.

Berkeley denies this possibility.

Conceptualism seems to be a tenable position ,

It may, however, be mentioned in support of conceptualism that, in thinking of a class, we merely attend to the common features, without any reference whatsoever to the individual peculiarities, so that a concept brings before our mind only the qualities or features constituting its meaning | Thus, in thinking of a 'pencil', we may simply realize that it is an instrument for writing without fluid ink , and in the case of 'man', the general features and qualities of mankind without any reference to some particular stature or colour found in an individual "The note so bravely struck by Berkeley", writes Prof. James, "could not, however, be well sustained in face of the fact patent to every human being that we *can* mean color without meaning any particular color, and stature without meaning any particular height." (*Principles of Psychology*, Vol I, p 470) And this is practically admitted even by nominalists Mill, for example, acknowledges that, "while the concentration of attention actually lasts, if it is sufficiently intense, we may be temporarily unconscious of any of the other attributes, and may really, for a brief interval, have nothing present to our mind but the attributes constituent of the concept." (*Examination of Hamilton*, p 393) And if we are "temporarily unconscious of any of the other attributes," these do not enter into the central meaning, but constitute a "psychic fringe" outside the range of thought at the time. (*Vide Chap VI, § 11.*) Prof. James, accordingly, observes—"Our doctrine of the "fringe" leads to a

perfectly satisfactory decision of the nominalistic and conceptualistic controversy, so far as it touches psychology. We must decide in favour of the conceptualists, and affirm that the power to think things, qualities, relations, or whatever other elements there may be, isolated and abstracted from the total experience in which they appear, is the most indisputable function of our thought." (*Principles of Psychology*, pp 472—473) It may be mentioned in this connection that the truth of Conceptualism does not preclude the truth of Realism, if it is teleologically construed. But, as the discussion would properly be outside the scope of Psychology, we pass it over here.

§ 8 Relation of Language to Thought
 The Relation of Language to Thought is very close. Language may be taken either in the form of natural language (*e.g.*, gesture or expression) or in the form of artificial language (such as the spoken or written system of symbols). Natural language is often the expression of feeling, while artificial language is generally the expression of thought. And we shall confine our attention here to the consideration of artificial language.

In the department of knowledge there may be rudimentary perceiving or imagining without any accompaniment of language, and even vague, general images may be possible without it. But thinking or conceiving in a definite form is hardly possible without the aid of language. Children, no doubt, speak before they think; but they can scarcely be said to think before they speak. Thus,

and it is not inconsistent with Realism when teleologically construed

Language and thought are closely connected. Language is either natural or artificial. The latter, as expressing thought, is considered here.

Rudimentary perception or imagination is possible without language; but

definite
conception of
thought
always
requires it

The function
of language
is (1) to
register and
(2) to
communicate
thoughts.

Language and
thought are
social
products
which
develop side
by side.

The course of
development
is from the
simple to the
complex

the mechanical use of language should be distinguished from its intelligent use, which generally requires the development of the power of thought. Language, as we have seen, is essentially a system of general signs or symbols (*Vide Chap. XI, § 7*); and its function is (1) the registration and (2) the communication of thoughts. Though the latter is the chief function of language required for the daily needs of life, yet the former is no less important. The accuracy, precision, retention, and flow of thoughts are materially aided by language. (*Vide Principles of Logic, Vol. II, Chap. XXVII, § 1*)

We should remember in this connection that both Thought and Language are to a great extent social products. As we are taught the uses of terms, so we are helped in the formation of concepts. Mere unaided personal efforts would lead but a little way in either direction. And, as a matter of fact, we find that both develop *passim passu* through the influence of society. The degree of development of language indicates the degree of development of thought among people. The child is taught from infancy to associate certain symbols with certain things. And progress in this direction is necessarily determined by the course of mental development. Hence in early life, when perceptual experience predominates, proper names and the names of concrete objects are chiefly used. With the growth of the power of abstraction, names of classes and abstract terms come to be employed. This is illustrated in the use of substantives before adjectives. Thus, the more limited or concrete

concepts appear earlier than the more wide or abstract concepts. A child, for example, forms the ideas of cats, dogs, horses before forming the ideas of animals or material bodies, of colour or weight

It may also be mentioned here that language has both (*a*) a passive or receptive and (*b*) an active or communicative side. In both association by contiguity is illustrated, suggesting thoughts or things by means of symbols. The passive form is clearly exhibited in the auditory aspect of language, which is an important means of the acquisition of knowledge; while the active form is prominently illustrated in the vocal or manual aspect, which enables us to communicate our thoughts by means of uttered or written symbols. In either case, the connection between language and thought is found to be so very close that the one generally tends to suggest the other. And language being ordinarily the vehicle of thought, what contributes to the excellence of the former contributes also to the excellence of the latter. "Language," says Hamilton, "is to the mind precisely what the arch is to the tunnel. The power of thinking and the power of excavation are not dependent on the word in the one case, on the mason-work in the other; but without these subsidiaries, neither process could be carried on beyond its rudimentary commencement. Though, therefore, we allow that every movement forward in language must be determined by an antecedent movement forward in thought; still, unless thought be accompanied, at each point of its evolution, by a corresponding evolution of language, its further

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Language has (*a*) a passive and (*b*) an active side,

the one for the acquisition and the other for the communication of knowledge.

The development of language helps the development of thought. Hamilton's testimony.

development is arrested." (*Lectures on Logic*, I, p. 139)

In intuitive thinking ideas are present in the mind,

while in symbolical thinking there is but an implicit reference to them by means of symbols.

The ultimate test of correct thinking lies in intuitive thought

§ 9. Intuitive and Symbolical Thinking. We think intuitively when we realize the corresponding ideas in our mind. When, for example, we use the word 'triangle,' we think intuitively if we represent in our mind a figure bounded by three lines. Symbolical thinking, on the other hand, means that we may use language or expressions without realizing the corresponding ideas. When, for example, we use the name 'chiliagon,' we do not represent in our mind a plane figure of a thousand sides. Here language takes the place of thought : expressions or symbols are employed as substitutes for ideas to be represented in the mind. Ordinarily we think symbolically. In reading, for example, we scarcely represent in our mind every idea corresponding to every word we read. Thus, in many cases, fallacies, and even contradictions, escape our notice. I remember an old mason telling me that he might be held responsible for his work if it did not last for over a century. The ultimate test, therefore, of correct thinking is to be found in intuitive thought. Whenever any description cannot be reduced to ideas, it is to be regarded as unmeaning. Mansel very aptly compares symbolical knowledge to bank-notes : as the value of bank-notes depends on their being changed into the current coins of a realm, so the value of symbolical thought depends on its being transformed into ideas. As a bank-note which cannot be changed is useless, so a symbolical knowledge which cannot be converted is meaningless.

Prof. James, referring to conceptions of what he calls problematic objects (*i.e.*, objects whose meanings are defined by their relations supposed to be possible, though not actually represented or imaged), writes—"The natural possibility or impossibility of the thing never touches the question of its conceivability in this problematic way. 'Round-square,' or 'black-white-thing' are absolutely definite conceptions; it is a mere accident, as far as conception goes, that they happen to stand for things which nature never shows us, and of which we consequently can make no picture." (*Text Book*, p 242.) It may, however, be mentioned that words carry a sense only by reference to things and their relations, and if these be such that they cannot even be possibly realized in thought or imagined, then the words representing them must be treated as non-sensical or absurd. The meaning of 'round' contradicts the meaning of 'square,' and the meaning of 'black' is the reverse of what is understood by 'white.' When, therefore, such conflicting ideas are combined together, the result is not a relation, sensible or intelligible, but a total blank. Such expressions, therefore, can hardly be taken to stand for conceptions at all.

Prof. James's view that conceivability is not determined by possibility or impossibility of representation is scarcely tenable.

§ 10. Analytical, Synthetical, and

Ideal Concepts. We have seen that conception always involves analysis and comparison, and so a synthesis of common features to the exclusion of individual peculiarities. Some conce ts h -

Though conception generally involves analysis and synthesis,

analytical or
synthetical
by reference
to their dis-
tinguishing
features

traction prominently, and these are, therefore, called *analytical concepts*. While there are other concepts which illustrate combination or synthesis in a marked form, and these are, accordingly, called *synthetical concepts*. Thus, the more abstract concepts of colour, size, or figure illustrate separation or analysis in a prominent form. The more general a concept, the more analytical is its character. To conceive, for example, animal or colour requires a more vigorous exercise of abstraction than to conceive man or red. Similarly, there are notions which exhibit the aspect of synthesis or combination in a marked degree, such as we find illustrated in constructive imagination. Thus, the notions of 'desert,' 'continent,' 'Moghul emperor,' are formed by a synthesis of elementary notions which enter into their meanings. Synthetical concepts are well illustrated in the ideas of numbers. A number is conceived by reference to the summation of units when the number is small, such as 5 or 7, the summation may be intuitively conceived by reference to points, dots, or objects, but in the case of higher numbers, such as 100 or 1000, the summation is assumed and the numbers are but symbolically, conceived.

Concepts illustrate at times an idealizing process. When, for example, notions are formed transcending the imperfect presentations of experience, we find such ideal concepts illustrated. Thus, the mathematical notions of 'circle,' 'line,' 'a smooth plane,' the theological conceptions of

Concepts
illustrate an
idealizing
process when
they repre-
sent objects
as the
mon run

'heaven' and 'hell', the notion of 'judicious man' as supposed by Aristotle or Mill, and the idea of an 'impartial spectator' as employed by Adam Smith—all illustrate, more or less, an idealizing tendency.

§ 11. Relation of Conception to Imagination Conception and Imagination are very closely connected. To arrive at a clear, distinct, and accurate notion, we must be able to represent the individual members of a class and their qualities vividly and faithfully. Erroneous representation leads to an incorrect notion. Similarly, when an image is indistinct, the corresponding notion must also be hazy. Thus, concepts depend on images for their formation and distinctness. But even when concepts have thus been formed, the relation of dependence continues. If every now and then we do not realize in imagination the meanings of general terms, we gradually forget their connotation; and then they would tend to become not only vague but positively incorrect. Thus, the validity of concepts depends, to a great extent, on images. Though concepts thus depend on images, yet images also are influenced by concepts. When, for example, we have an image in our mind, we know it as a representative of this or that class. In fact, our mental life is a unity, which can never be completely broken up: the presence of one factor involves the presence of the rest, more or less.

It may be said in this connection that there are generic images which may in a sense be said to

Conception
and Imagination
are interconnected.

The vitality
of concepts is
preserved by
imagination.

Generic images may be viewed as connecting links between images and concepts

come between concrete images of individuals and the general notions of classes. Prof. Robertson observes, "Some have put in between the image and the concept the Generic Image, a distinction useful in so far as it shows that some concepts come nearer to the image than others. Whenever, in a concept similarity predominates over difference in a multitude of particulars brought together, then the concept retains most of the characteristics of the image. In thinking of 'sheep,' unless we are dwelling on the word sheep, we get not one image, nor yet necessarily a succession of images, but a sort of *general idea of a sheep*. This result is not itself exactly an image, it is not the image of any one sheep we ever actually perceived, but it still has something of the definiteness of an image in it, a certain schematic distinctness. This is a generic image or *schema*, and it is for us the thought or concept of sheep" (*Psychology*, p. 168). It may be mentioned, however, that though such images have a generic reference, yet ordinarily they are not accompanied by a distinct consciousness of generality. And, as we come to think of very wide classes (such as 'coin,' 'animal,' 'relation'), generic images become impossible. But, even in such cases, the validity of a concept can be determined only by the possibility of representing its characteristics as embodied in an image. The image, no doubt, has in it certain peculiarities not essential to the concept, but it serves to explain its meaning and prove its validity. The test of thought must, therefore, always lie in imagination.

Such images are not possible in the case of abstract concepts, whose validity can be determined only by reference to concrete images imperfectly representing

§ 12. The Psychological and the Logical Concept. The psychological concept is essentially progressive as determined by the mental history of the individual: concepts at first vague and indefinite gradually become clear and definite through the multiplication of experience. The logical concept, on the other hand, is an ideal product as determined by the enlightened knowledge of the community: it is comparatively fixed and determinate as having its connotation settled by careful and methodic research.

Progress from the psychological to the logical concept is made gradually as the powers of observation and analysis develop. At first the notions or concepts formed by a child are vague and hazy: the essential qualities constituting the connotation are not definitely grasped. The vagueness of a notion leads also to its inaccuracy: if accidental qualities are included in the connotation, the denotation is unduly narrowed; if essential qualities are left out, the denotation is rendered too wide. The defects are remedied by careful education and scientific training. When the powers of careful observation and reflection develop, a child would note all the common and essential attributes by an examination of the representative instances of a class. The connotation of a notion thus carefully settled is preserved in the form of the logical definition and it is associated with a term or name. It illustrates the two functions of assimilation and discrimination, more or less prominently. In settling the connotation or definition

The psychological concept is progressive, being determined by mental experience, while the logical concept is comparatively fixed having a definite connotation.

Progress from the psychological to the logical concept is gradual with the development of the powers of careful observation and analysis.

of 'wise', we not only attend to the common and essential features present in every form of wisdom, but we also distinguish it from allied notions (such as 'learned' and 'intelligent') by noting the points of difference Classification or division likewise illustrates similarity and difference (*Vide Principles of Logic*, Vol. II, Chap. XXVI, § 1 and § 5)

§ 13 Exercises

- 1 Explain the nature of General Ideas, and exhibit the process by which they are formed
- 2 What is the function of Conception in Knowledge?
- 3 What great controversy has arisen as to the nature of Concepts or General Ideas? State in the briefest manner the essential points of dispute among Realists, Nominalists, and Conceptualists
- 4 How do you distinguish between Perceptual and Conceptual Thinking?
- 5 Trace the development of Concepts, and show their importance in mental life.
- 6 Distinguish between the psychological and the logical treatment of Thought, with special reference to the question whether all our thinking is carried on by concepts, as the logician understands them
- 7 "No reason without language."
"No language without reason"
Comment critically on these aphorisms
- 8 Examine the process of Judgment, contrasting it with Perception, and show that it involves both analysis and synthesis.
9. What is the proper place of the conception of the Ego or Subject in psychology? Distinguish between the psychological and the metaphysical conception of the Ego
10. How do you define the terms Conception and

Imagination? Distinguish carefully between the meanings of the word 'Conceive' in the following sentences.—

I cannot conceive a disembodied spirit.

I cannot conceive that twice two should make five.

11. How are notions or Concepts formed? Analyse the mental process in thinking of a straight line as defined by Euclid

12. Give an account of the psychological questions at issue between Nominalists and Conceptualists, and state how you would yourself resolve them

13. Explain the relation of Concept to Image, referring to the historical controversy between Nominalism and Conceptualism.

14. It is sometimes said that an intelligent dog will recognise any member of the class of beggars as such. Inquire what is likely to be the real nature of the recognition, and whether it involves the possession of general idea

15. What do you understand by Thought? Point out the function of Thought in the formation of Notions; and how are they distinguished psychologically and logically?

16. Distinguish between Analysis and Abstraction. How are they related to Generalization? Indicate the different grades of Thought and point out their relation to one another

17. Discuss the relation of Language to Thought. What do you understand by Symbolical Knowledge? What is its final test?

18. Explain the formation of Concepts, and distinguish precisely between a concept, a generic idea, and a representative geometric diagram (*e.g.*, of a triangle).

19. Distinguish carefully between a Concept and a Judgment, and discuss the question of their relative priority. Is a Concept a mere elaboration of a Percept? Does Conception imply any advance upon Representation? Give a psychological, as distinguished from a logical, analysis of the fundamental type of Reasoning.

20. Explain the nature and relation of Conception and Judgment.

21 Explain the nature and relation of Attention, Abstraction, and Generalization

22 Analyse the concepts *flower* and *machine*. Describe the process of the formation of such concepts

23 Show clearly that imaginative activity is indispensably required in the highest intellectual operations

24 Discuss the theory of the formation of Abstract Ideas, considering especially the relation of the Generic Image (or Percept) to the Concept

25 What is the relation of Memory to the higher faculties of mind? Show that Memory without these faculties is of very limited practical value

26 What is the psychological function of General Names?

CHAPTER XIII.

KNOWLEDGE. JUDGMENT AND REASONING.

§ 1. Character of Knowledge and its Implications. We have seen that Thought illustrates prominently the synthetic or assimilative power of the mind. To think of an object is to know pre-eminently what it is—its features or marks. Thus, even perception in a definite form, as involving a concept, illustrates knowledge. As, however, assimilation or synthesis is involved in a marked degree in Conception, Judgment, and Reasoning, Knowledge always implies elements of some or all of them. As already mentioned (*Vide* Chap. XII, § 2), the distinction of Conception, Judgment, and Reasoning is rather a logical than a psychological one, they all being more or less discursive in character. The comparatively abstract concepts clearly involve judgment and reasoning as implicated in the preliminary processes of analysis and comparison, and even the relatively concrete concepts, implying a plurality of attributes, involve them—such concepts being really abbreviated forms of judgments (*Vide Principles of Logic*, Vol. II, Chap. XV, § 2). And judgments, too, involving predication, are generally the outcome of inference. Even when we judge 'This mango is sweet,' the subsumption of the mango under sweet things is implied. In a certain sense, then, conception may be taken to illustrate all the

Knowledge illustrates assimilation or synthesis in a prominent form and involves, more or less, Conception, Judgment, and Reasoning which are implicated in one another.

Conception as a mental process may be said to include Judgment and Reasoning; and hence its use in a wide sense.

exercises of thought, and hence we find the term employed at times (1) in the generic sense of Intellection, besides the (2) specific sense in which it is ordinarily used*.

It is clear from the preceding remarks that essentially the same intellectual exercise manifests itself in different forms in Conception, Judgment, and Reasoning. And the character of this intellectual exercise is synthesis or assimilation in a prominent form, which issues itself in what we call Knowledge. Knowledge always implies a coherent system with the conviction of its objective validity. My knowledge of the 'tree' or 'man', for example, implies a harmonious group of ideas constituting the meaning of the term and having reference to a reality which is independent of any subjective opinion. The essential mark of knowledge is its objectivity† or independence of personal view, and the conviction connected therewith. Knowledge, accordingly, may be defined as a system of ideas corresponding to a system of facts, accompanied by a belief in their correspondence. The knowledge, for example, of a tree implies the presence of a system of ideas in the mind, such as those of the trunk, branches, leaves, etc., bearing a certain relation to one another, and a belief in the correspondence of these with facts.

* "Conception in one sense is equivalent to Thinking or General Intellection, and in another sense is a mode of Thinking, the other modes being Judgment and Reasoning." (Robertson, *Psychology*, p. 177.)

† Objectivity indicates what is valid for all consciousness and not merely for this or that.

Knowledge
implies belief
in the objective
validity
of a coherent
system of
ideas

Thus, knowledge in every case implies a subjective side (*viz.*, ideas) which corresponds to an objective side (*viz.*, facts or reality), and there is a conviction of their correspondence. If any one of these factors be wanting, there cannot be any knowledge. In order to the presence of knowledge, therefore, it is not adequate that there should simply be reality or facts: the reality must be known or, in other words, there must be a system of ideas corresponding to a system of facts. But there must also be belief in the correspondence between these two sets. When such a belief is wanting there can be no *knowledge*, even though there be a system of ideas and a system of facts. In wild reverie, for example, there may be ideas passing through the mind which may or may not agree with facts; but such a chaotic conflux of ideas cannot be called knowledge, since a belief in correspondence is absent. If, in any case, inspite of the belief, there be no actual correspondence between ideas and things, then, instead of knowledge proper, we have what is called *error* or *mistake*. And when there is such a correspondence, supported by common experience or by improved methods of research, then knowledge amounts to truth.

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§ 2 Judgment and its Fundamental Forms. As already suggested, Judgment may be taken to be the unit of thought: knowledge really begins with judgment. When we perceive, remember, or imagine things, we judge their character and also their relative place in the order of

Psychologically a judgment may be regarded as the unit of thought

experience, if necessary. Even when a child exclaims 'fire' or 'serpent', or an adult ejaculates 'Good Heavens' or 'sorry', the expressions indicate short and hurried judgments—such as 'I perceive fire,' 'I see a serpent,' 'I am astonished beyond measure,' 'I am sorry.' Thus psychologically all experiences are personal estimates and so are judgments which, of course, should be distinguished from logical judgments involving a comparison of two distinct ideas or notions.

**Distinction
between
psychological
and logical
judgments**

The distinction between *psychological* and *logical judgments* is well indicated by Mansel. "Every operation of thought," he writes, "is a judgment, in the psychological sense of the term, but the *psychological judgment* must not be confounded with the *logical*. The former is the judgment of a relation between the conscious subject and the immediate object of consciousness; the latter is the judgment of a relation which two objects of thought bear to each other. The former cannot be distinguished as true or false. The latter is true or false, according as the relations thought as existing between certain concepts are actually found in the objects represented by those concepts or not. The logical judgment necessarily contains two concepts, and hence must be regarded as logically and chronologically posterior to the conception, which requires one only. The psychological judgment is coeval with the first act of consciousness, and is implied in every mental process, whether of intuition or of thought." (*Prolegomena Logica*, pp. 54-55.)

A judgment

A judgment is not merely the spontaneous

coalescence of ideas suggested by experience; it is a relation discovered by the mind through the activity of thought. It illustrates, as mentioned above, the assimilative or synthetic function in a prominent form. When, for example, we judge 'This is a lamp,' 'Men are mortal,' or 'Planets are heavenly bodies,' we evidently bring together ideas on the ground of likeness, complete or partial. Even in the case of negative judgments, this aspect of assimilation or synthesis is not wanting. When we say, for instance, 'This is not silk,' 'Hari is not honest,' 'The weather is not fine,' we merely repudiate the suggestions 'This is silk,' 'Hari is honest,' 'The weather is fine.' Affirmative judgments are psychologically prior to the negative ones, which merely indicate the rejection of corresponding affirmative judgments.* Thus, we never frame such judgments as 'Hari is not weather,' or 'The weather is not silk,' because the corresponding affirmative judgments are never suggested to us, unless we are abnormally constituted, and if ever such combinations are suggested to us, we never hesitate to frame the corresponding negative judgments. Hence negative judgments may be supposed to have the function of merely averting errors.

Though, however, assimilation or synthesis underlies all judgments, more or less, yet the ground of synthesis may be furnished by different

* Sully writes—"The father remarks that C's sister had had a similar trick of opposing statements, e.g., "Dat E's cup, not mama's cup." He then proceeds to observe in his somewhat heavy didactic manner that these facts are of curious psychological and logical interest, showing us that negation follows affirmation, and can at first only be carried out by a direct mental confronting of an affirmation." (*Studies of Childhood*, p. 443.) Cf. Aristotle (*De Int.* C. 5).

is a product of mental activity and not merely the passive outcome of suggestive forces.
It illustrates assimilation or synthesis in a prominent form.

Negative judgments presuppose affirmative ones.

The ground of synthesis in a judgment may be furnished by experience or by fundamental notions.

Five Fundamental Forms of Judgments

(I) Qualitative judgments indicating the relation of substance to quality

The idea of substance first develops in connection with sense perception by means of active touch the primary qualitics are believed to

features suggested either by experience or the fundamental categories of the mind. Thus, we may judge objects either with regard to their colour, sound, or smell, or with regard to their spatial or temporal relations, or their relation of substance and quality or of cause and effect. We, accordingly, get certain main classes of judgments by reference to the psychological aspect of the ground on which they are based. And psychologically there are five fundamental forms of judgments, viz., (I) Qualitative, (II) Causal, (III) Quantitative, (IV) Associative, and (V) Modal. Let us briefly consider them in distinct sections.

§ 3 (I) Qualitative Judgments: Substance and Quality. Often do we form judgments in which we refer qualities to substance. Some writers are disposed to reduce all judgments to this type. Whether this is possible or not, it may be safely asserted that most of our judgments are resolvable into this type. When, for example, a child says 'Sugar is sweet,' the child evidently attributes the quality or property of sweetness to the thing or substance known as sugar. A psychological explanation of this judgment involves an examination of the ideas of substance and quality. Owing to the earlier development of sense-perception, the idea of substance is formed at the outset by means of active touch. The primary qualitics of body, namely, the force and space properties, constitute the meaning of substance. When, therefore, we refer a quality to a substance, we associate an experience derived through a special

sense with the experience of active touch. We associate, for example, sweetness, known through taste, with the experiences of active touch connected with sugar.

It may be remarked in this connexion that the idea of an object or substance is not formed by a synthesis of some qualities previously known to be distinct. In the actual history of our mental constitution the idea of an object as a unity precedes the *conception of qualities*. In fact, qualities as such are known by subsequent analysis. A substance as a concrete reality, having several features or aspects, is presented directly to the mind on the occasion of perception. It is not a product of synthesis, it is rather the residuum of analysis.

As we are concerned here with the psychological history of the conception of substance and quality, we have merely referred to the way in which the idea develops in the human mind, without any reference to its metaphysical ground. Careful analysis reveals, however, that the germ of the idea of an abiding ground, entering into the notion of substance, is found in the inexpungeable consciousness of self in the midst of its fluctuating moods. This consciousness, though ever present, is implicit in early years and becomes explicit only by subsequent analysis. As, however, perceptive faculties develop earlier than the reflective, the child is naturally led to construe the changing manifestations of objects as qualities inherent in an abiding substance; and as the secondary qualities are comparatively variable, distinguished

constitute the support or substance holding together the secondary qualities as its varying manifestations. Though substance and qualities are presented together, yet the idea of substance as a concrete unity having different aspects is formed before the idea of an abstract quality.

The germ of the notion of substance is found in the persistent consciousness of self as an abiding energy in the midst of its fluctuating states.

from the primary, the latter are taken to constitute the very essence of material substance

The ultimate meaning of substance is thus found to be an abiding energy manifesting itself in different forms known as its qualities or properties. This energy viewed in relation to time is what we mean by 'mind', and this energy inseparably connected with space is what we call 'matter'. This energy in a potential form is regarded as 'substance' (from Lat. *sub*, under, and *sta*, to stand), while in a kinetic form it is considered as 'cause.' That there is correspondence between the two forms of energy conceived as mind and matter is evidenced both by the intimate relation of mind and body and by the interaction of the internal and the external world revealed alike in correct perception and due adjustive movements. Whether the two forms of energy are homogeneous or heterogeneous is rather a philosophical than a psychological question, which can be solved only by a comprehensive view of the entire universe.

The doctrine of Mill that substances are but permanent possibilities of sensations, is not at all tenable. Possibilities as futurities have only a subjective existence unless accounted for by reference to the potentialities of an energy believed to exist. Thus, mere sensations and their combinations or their possibilities can never render a satisfactory account of substance. Present sensations cannot reasonably be explained by mere possibilities which would be but futurities unless actualized as latent powers of some abiding energy.

The energy connected with time is viewed as 'mind', and the energy bound up with space is viewed as 'matter'. The energy in a potential form is regarded as 'substance', while in a kinetic form it is conceived as 'cause'.

The doctrine of Mill that substance is a mere permanent possibility of sensations

The doctrine of Kant and his followers, that the category of substance and quality is merely regulative and not constitutive, neither seems to be tenable. If, as explained above, the consciousness of an abiding self is inextricably present in every form of personal experience, then the category has certainly a constitutive, and not simply a regulative, value. Natural logic leads the child to construe substance in the perceptive sphere quite in an analogous way, and teleology evidently lends its support to such a construction.

§ 4 (II) Causal Judgments : Cause and Effect Another important class of our judgments implies the reference of an effect to a cause. When, for example, the child says, 'The cat mews,' 'The weight hurts me,' he evidently refers 'mewing' to the agency of the cat, and the painful experience to the agency of the weight. A careful analysis of such judgments betrays that efficiency or productiveness is essential to the meaning of cause. The primary consciousness of this efficiency is but implicitly present at first in the volitional control of one's own movements. As, however, the perceptive faculties develop before the reflective and as sequence is ordinarily found to be conjoined with the transition of a cause to its effect, this impressive mark of sequence or succession is taken to be the essence of the causal relation.* And as, owing to the uniformity of

and the doctrine of Kant that the category of substance and quality has only a formal and not a real significance are not tenable.

The idea of agency is involved in the notion of cause.

As the causal relation is ordinarily presented in the form of invariable succession, this is often taken to

* Hamilton deduces the law of causality from what he calls the *Law of the Conditioned*, which he enunciates thus --- "All that is conceivable in thought lies between two extremes which, as contradictory of each other, cannot both be true, but of which, as

be a mark of it, though this is only an accidental feature

nature, the same cause always gives rise to the same effect, this uniformity or invariability of succession is also imported into the idea of the causal relation, so that philosophers like Hume and Brown have been led to define causation as mere invariable succession. Nevertheless, the consciousness of efficiency implicitly controls the use of the causal notion in explaining the genesis of things. And hence even empiricists like Mill have been led to modify the view of Hume and Brown by maintaining that the cause is not merely the invariable, but also the unconditional, antecedent of the effect, the conception of unconditionality being nothing more than that of efficiency in disguise. (*Vide Principles of Logic*, Vol. II, Chap XVII, § 3 and § 4.)

Psychological analysis reveals that this aspect of invariable succession plays a prominent part in the development of the causal conception

A psychological analysis of causal judgments thus betrays the idea of succession, which ordinarily enters into the causal conception, and, as already mentioned, causation is distinguished from other forms of succession by the fact that it is uniform and invariable in character. Such succession is at the outset forced upon the mind of the child when it is specially interesting or impressive. The child would notice effects produced by himself very early in life. Muscular experience contributes materially to the notion of cause. A child doing something is conscious of the muscular exertion as

mutual contradictories, one must" (*Metaphysics*, II, pp 368-369) As, therefore, we cannot conceive an absolute commencement nor an absolute termination, we are constrained to construe that every event has a cause whenever we perceive an effect, we are led to think that it must have previously existed in its causes, though what these causes are we may not know.

well as of the effect produced; and thus the effect is referred to his own agency. Likewise, when some one else caresses him or hurts him, he attributes his agreeable or disagreeable experience to the agency of another; and similarly when one object imparts motion to another by striking against it, the movement is explained by reference to the action of the first object. In all such cases, the meaning of cause is found in some influence exerted by one thing on another; and this influence is believed to be analogous to what is exerted by oneself on the occasion of voluntary action. That the origin of the causal conception is thus to be found in one's own experience is evident from the anthropomorphic interpretation of causality generally. Every cause is, at the outset, regarded by the child as having some end in view. Later experience leads the child to distinguish between human and physical causation. It is experience which teaches the child that natural causes have no end in view; they are, as Mill says, mere invariable and unconditional antecedents.

Though the relation of uniform succession brings into relief the causal relation as distinguished from other relations, yet subsequent analysis and reflection reveal that succession is not essential to it: it is found that what constitutes a cause is its efficiency or productiveness and not its priority. Nay, it is soon discovered that the succession, supposed to be inherent in the causal relation, is due merely to our subjective incapacity of apprehending simultaneously what may simul-

The volitional origin of the causal conception is proved by the primitive anthropomorphic interpretation of causality generally.

Later reflection reveals that sequence is immaterial to causation, whose essence lies in efficiency or productiveness, primarily made known to us

through the voluntary regulation of activity.

Thus the category of causality is not merely formal but real.

Quantitative judgments express all relations of equality or inequality

The perfect assurance of mathematical judgments is due to their demonstrative character

Identity is perfect similarity, and similarity is but imperfect identity

taneously happen. There is nothing in the very nature of cause which prevents it from being simultaneous with the effect - they are, as the modern doctrine of conservation of energy tends to support, but different aspects of the same fact. And, as the knowledge of efficiency, which constitutes the very meaning of cause, is primarily derived from personal agency, the category of causality cannot properly be viewed as merely formal or regulative but as real or constitutive, determining the flow of events themselves. (*Vide Chap XVII, § 7*)

§ 5. (III) Quantitative Judgments.

Quantitative Judgments cover all relations of equality or inequality whether in respect of discrete or continuous quantity. Thus, we may say 7 and 5 are equal to 12, 5 is less than 7, the opposite sides and angles of a parallelogram are equal to one another, or the diameter of a circle is greater than any other chord of the same circle. The perfect assurance connected with mathematical judgments is due to their demonstrative character. They ultimately rest on axioms which follow immediately from the fundamental laws of thought. Thus, in the case of arithmetical equality, we can verify the truth by the summation of units, which finally reveals identity or difference in result, and so in the case of geometrical equality or inequality, which can be verified by super-position revealing a relation of identity or difference. It may be mentioned here that identity is but perfect similarity, and similarity is but imperfect identity—identity in respect of some feature or quality. A

distinction has sometimes been drawn in this connection between 'material identity,' and 'individual identity.' The former implies the presence of the same feature or quality in different objects, as when we speak of the same colour being present in a white rose and a lily. The latter implies the absence of numerical difference or individual distinctness. The same book is opposed to two distinct books. The idea of individual identity develops with the growth of the notion of a permanent and abiding world as distinguished from its varying manifestations. The idea is intimately connected with that of substance

§ 6. (IV) Associative Judgments. These judgments express chiefly the relations of space and time and are really distinct from qualitative or causal judgments. Thus, we say 'The book is on the table,' 'John is downstairs,' 'Lightning precedes thunder,' 'The battle of Sheriffmuir synchronized with that of Preston.' In such cases the judgments are based on subjective association as distinguished from the objective connection illustrated in qualitative and causal judgments. No doubt, the subjective association in the one case is due to an objective relation, and the objective connection in the other is apprehended only through subjective association. But the very fact that the relation might have been otherwise proves the relative subjectivity of the one, while the inseparable connection revealed in the other proves its relative objectivity. Besides the associative judgments instanced above, which illustrate (1) contiguity, there are other forms

Distinction
between
'material
identity' and
'individual
identity.'

Associative
judgments
chiefly illus-
trate rela-
tions of space
and time

They are due
to subjective
association.

They are of
three forms
correspond-
ing to the
three forms
of associa-
tion.

exemplifying (2) similarity and (3) contrast, such as 'John is like Jones,' 'Vice is opposed to virtue.' Thus, there are as many forms of associative judgments as there are forms of association. (*Vide Chap. X, § 9.*)

These judgments express the different degrees of assurance with which we view different relations and they often vary with the extent of knowledge and the degree of insight
Three forms of modality.

§ 7. (V) Modal Judgments These judgments evidently indicate the manner of connection existing between the constituent notions or the corresponding things. Thus, there are the three classes recognised as (1) necessary, (2) assertory and (3) probable. (*Vide Principles of Logic*, Vol I, Chap VI, § 7.) They indicate but the degrees of assurance with which we view different relations, as warranted by facts. And at times judgments, which, on a superficial view, seem only to be probable, turn out, on wider experience and deeper insight, to be assertory or even necessary (*Vide § 10 below.*) Nevertheless, ordinarily such judgments are based on the degrees of connection discovered between objects, such as 'Two and two must be four,' 'Ram is present,' 'John may come.' It might be said, however, that had we a deeper insight into the character of Ram and John and the concomitant circumstances, then the last two judgments, instead of being assertory and probable, would have been necessary. If there be any room for contingency at all, it is in the sphere of volition when unmodified by formed character.

Judgments require both materials which con-
the

§ 8. Conditions of Judgments The preceding account must have made it clear that judgments, like other mental experiences, require both (1) objective and (2) subjective factors. These

conditions of a judgment may briefly be indicated thus :—

(1) *Objective Conditions* (a) *Presentative*. When any connection or relation between things is presented to the mind, it is incorporated in a judgment.

(b) *Representative*. Every judgment involves an element of representation. Even when both the features constituting a relation are presented to the mind, ideas of them are presupposed in order to arrive at a judgment. To say, for example, that 'This table is red' implies representations of redness and table. And often judgments are based on mere representative materials, as when we say 'Cicero was an orator,' 'Mercury is the god of eloquence and commerce.'

(2) *Subjective Conditions* (a) The exercise of attention is more or less involved in every judgment. A judgment is a predication. A predication involves analysis and comparison, and these imply an exercise of attention more or less severe.

(b) These remarks bring out that the exercise of the fundamental intellectual functions upon the presentative and representative materials supplied by experience is essential to arrive at a judgment: if we cannot identify and cannot distinguish we cannot form a judgment. A judgment, as already explained, is not merely the passive outcome of factors brought before the mind by suggestive forces, it is an active product due to the mental recognition of a relation between ideas or

factor, and mental functions, which constitute the subjective.
(1) The objective factor involves the presentation of a connection or relation between (a) things or (b) representations.

(2) The subjective factor involves (a) attention

and (b) fundamental intellectual functions.

objects. It illustrates prominently the assimilative or synthetic function of the mind.

Judgments generally illustrate an associative factor as well, in a more or less prominent form. Thus, when, seeing a dog, we say it barks, or, on seeing sugar, we say it is sweet, the judgments, though qualitative in character, involve evidently an associative element in an implicit form. Similarly, when we say that 'The tree is at a distance of fifteen feet,' an associative factor is prominently illustrated.

(1) Psycho logically the distinction is intelligible by reference to the analytical or synthetical exercise of attention

§ 9 Analytical and Synthetical Judgments The distinction between these two classes of judgments may be viewed from (1) the psychological and (2) the logical stand-point. (1) *Psychologically considered*, judgments are analytical or synthetical, according as they illustrate more of the analytical or synthetical exercise of attention. No doubt, in every judgment the assimilative or synthetical function is prominently illustrated (*Vide* § 2 above), but, subject to this general condition, there may be variation in regard to the degree of the analytical or synthetical exercise of attention involved in any case. Thus, in our early perceptual life, individual objects are vaguely apprehended in their concrete fulness, before their qualities or parts are analytically separated. When a child, for example, speaks of a ball as round or red, the form or colour is analytically separated from the complex of qualities, implicitly apprehended before, as constituting the meaning of the object. (*Vide* Chap. VII, § 1.) And it is by such judgments successively formed that the early implicit know-

ledge of an object is gradually rendered explicit. But at the same time it should be remembered that all features or properties of an object are not presented at once. Through information or examination new aspects or conditions are discovered in connection with objects or events, which furnish grounds for fresh judgments. These judgments are thus synthetical in character, as illustrating very prominently the synthetic exercise of attention—bringing together things or features not previously known. Thus, judgments like 'Honesty is the best policy,' 'Whales are warm-blooded,' and 'Two and three are five' are of this type. It is by the multiplication of such judgments that our concepts become fuller and fuller in their signification; and most of our judgments in early life are of this character, except some qualitative and causal judgments.

(2) *Logically considered*, the distinction refers to the signification of a judgment viewed in relation to what is implied by its subject. Logic does not investigate the course of development of the human mind. It does not, accordingly, inquire into the actual way in which our ideas or judgments are formed. It is concerned with the ideal of truth or correctness. A logical concept, accordingly, is rather stereotyped, having its fixed connotation. A concept psychologically considered, on the other hand, is highly variable, being vague and indefinite at the outset, and becoming gradually distinct and definite. Thus, an analytical or a synthetical judgment, though logically fixed, being determined by the scientifically accepted connota-

Synthetical
judgments
gradually
enrich our
concepts.

(2) Logically
the distinc-
tion is
intelligible
by reference
to the
implications
of the
subject of
predication.

tion of the subject, is psychologically highly variable, being relative to the amount of information present in a particular mind.

Logically, then, a synthetical judgment is one which conveys a real information about its subject. the connotation of the predicate is not included in that of the subject. An analytical judgment, on the other hand, merely explains the (essential) meaning of the subject. the connotation of the predicate is included in that of the subject

Inference
illustrates
the
assimilative
function
prominently

Deduction,
Induction,
and
Probability
are the three
main forms
of Inference

§ 10. Inferential Process The inferential process, being the most complex form of thought, illustrates the assimilative or synthetic function very prominently. In every form of inference we proceed from some given case or cases to another on the ground of similarity between them.* This is illustrated in (1) Deduction, (2) Induction, and (3) Analogy or Probability, which are the three main forms of inferential process. (1) In Deduction there must be similarity between a case and a principle, between the minor and the major premises, before we can draw any conclusion. (2) In Induction also there must be essential similarity among several instances before we are justified in

* We should remember here the distinction between the logical and the psychological order of inference (*Vide Principles of Logic*, Vol I, Chap XIII, § 1). Though the proper form of inference is to state the premises first and then the conclusion following from them, yet, as a matter of fact, the conclusion is spontaneously suggested to the mind on any occasion because of previous experience, and premises or reasons are advanced afterwards by way of justification. Thus, we say 'John will succeed at the examination, for his preparation is good,' or 'Sky larks are singing birds, since this, that, and the other sky-lark sing.' Though, however, the psychological order of an inference is from the conclusion to its premises, yet, to determine its validity, it is desirable that it should be reduced to the proper logical order.

generalizing a conclusion. (3) And in Analogy or Probability, too, there must be some similarity between one or few cases and another, before we can possibly anticipate anything. It needs scarcely any mention here that though assimilation or similarity plays a prominent part, yet discrimination and association are also present. From mere difference we can never infer anything ; but without difference there would be confusion of cases and so no room for inference. If the detection of similarity makes a person prompt in reasoning, the detection of difference makes him careful and precise. And association, too, is illustrated in the inferential process, since ordinarily we are led to infer a representative factor by the suggestive force of a presentation or representation. Thus, an element of inference is present even in perception and memory, though, owing to its implicit character in these cases, it is overlaid by more impressive features. In Memory, for example, the inferential process carries us implicitly to some past experience ; while, in Reasoning, it leads us explicitly to a conclusion having generally a reference to some future experience.

We have said that ordinarily three prominent kinds of Inference are recognized—*viz.*, (1) Deduction, (2) Induction, and (3) Analogy or Probability. A closer examination reveals, however, that the ground of this distinction is rather relative than absolute. Properly speaking, every form of inference leads us to expect a result on the ground of some evidence ; and the strength of this evidence varies with different minds or in different cases, so that

Discrimination makes an inference precise

The different degrees of probative force of the different kinds of

inference
depend on
the degree or
extent of our
knowledge

Illustrations

(1) from
geometrical
demonstra-
tion,

what now seems to be probable may subsequently appear as inductively certain or even as deductively or demonstratively conclusive. Let us illustrate our remarks by reference to some cases which are ordinarily taken to be instances of (1) Deduction, (2) Induction, and (3) Analogy or Probability.

(1) Let us first take the case of Geometrical Demonstration, which is believed to be the most conclusive form of deductive reasoning. Let us take the fifth proposition of Euclid (a) Here we follow the reasoning step by step until we are driven to accept the conclusion on the strength of the definitions, axioms, postulates, and the truths established in the previous propositions (*Vide Principles of Logic*, Vol II, Chap XV, § 4) (b) Now, the conclusion which is here deductively established can be reached also by induction, if there be no prior knowledge of principles from which the conclusion is deduced. Thus, different diagrams of isosceles triangles may be correctly drawn and then the conclusion reached inductively by an exact measurement of the angles at the base in each case. What, from the stand-point of adequate or perfect knowledge (in which cases are included in principles), appeared before as deductive and therefore as absolutely certain, appears now from the stand-point of the imperfect knowledge of particulars as only inductively true or relatively certain. And we should remember here that even the degree of certainty involved in inductive generalization is really derived from principles and not cases without the assumption of the laws

of Uniformity of Nature and Causation even inductive generalizations would be impossible and there would be room only for vague expectation or indefinite probability. (c) Suppose now common people (such as masons, carpenters, or other workmen), without a knowledge of the mathematical properties of figures, measure the angles at the extremities of walls, planks, or ditches, arranged in the form of an isosceles triangle ; then, owing to the general imperfections of the figures, the angles would be found to be approximately equal in some cases and perhaps exactly equal in others. From this the natural conclusion would be that the angles at the base of an isosceles triangle are probably equal. Thus, what was absolutely certain at first (a), and relatively certain next (b), turns out to be merely probable when the knowledge of data from which the conclusion is drawn is very imperfect (c).

(ii) Let us next take the case of what is usually known as Mathematical Induction. (*Vide Principles of Logic*, Vol II, Chap. XXII, § 2) Thus, (a) finding that

$$\begin{aligned}1+3 &= 2^2, \\1+3+\overline{5} &= 3^2, \\1+3+5+7 &= 4^2, \\1+3+5+7+9 &= 5^2, \\1+3+5+7+9+11 &= 6^2,\end{aligned}$$

we are led to think that in the case of n number of odd numbers from the beginning the sum would be—

$$1+3+5+7+9+\dots+(2n-1)^* = n^2.$$

(u) from
mathematical
induction,

* The first odd number is $2-1$; the second, $2\times 2-1$; the third, $2\times 3-1$; the fourth, $2\times 4-1$, and so the n th is $2n-1$, and the $(n+1)$ th is $2(n+1)-1$, i.e., $2n+1$.

By adding $2n+1$ (which represents the next odd number) to each side of the equation, we get

$$1+3+5+7+\dots+(2n-1)+(2n+1)=n^2+2n+1=(n+1)^2.$$

Thus, the law being true for n terms, it is proved to be true also for $n+1$ terms; and so on we can proceed. Hence, the law may be extended to cover all similar cases. And so we generalize the rule that a series of odd numbers added together from the beginning gives a sum which is equal to the square of the number of odd numbers in the series (b) But now suppose one looks at the problem thus —

It is found that—

The first odd number is 1, which $= 2 \times 1 - 1$

The second " 3 " $= 2 \times 2 - 1$

The third " 5 " $= 2 \times 3 - 1$

The fourth " 7 " $= 2 \times 4 - 1$

... " * " *

The $(n-3)$ th " $2n-7$ " $= 2(n-3) - 1$

The $(n-2)$ th " $2n-5$ " $= 2(n-2) - 1$

The $(n-1)$ th " $2n-3$ " $= 2(n-1) - 1$

The n th " $2n-1$ " $= 2n - 1$

Thus, the sum of n number of odd numbers from the beginning

$$= 2(1+2+3+4+\dots+n-3+n-2+n-1+n)+n \times 1.$$

$$= 2 \times \frac{n(n+1)}{2} - n = n(n+1) - n = n^2.$$

+ By adding together the extreme numbers of this expression within brackets and the corresponding numbers from both the extremities we get $\frac{n}{2}$ number of terms of the type $n+1$ thus

$$(1+n) + \{2+(n-1)\} + \{3+(n-2)\} + \{4+(n-3)\} + \dots$$

$$\text{to } \frac{n}{2} \text{ terms} = \frac{n}{2}(n+1).$$

From this it is seen that what was an inductive generalization before now becomes demonstrative or deductive. (c) Again, one, not having recourse to either of the forms of proof given above, but merely adding together certain number of odd numbers from the beginning, would only arrive at a probable conclusion that in all likelihood the sum in every case is equal to the square of the number of odd numbers in the series.

(iii) Let us now take an example from Analogy or Probability. (a) Let us suppose one noticing that serpent-bite in a case proves fatal. He may be led to think by analogy that serpent-bite in another case also would perhaps prove fatal. Or suppose that, finding this not to be true always, he arrives at the probable conclusion that serpent-bite may prove fatal. This only illustrates his want of discrimination—the absence of adequate knowledge. (b) If now by careful observation he distinguishes between the different classes of serpents, then he may arrive at the inductive generalization that the bite of the cobra is always fatal. Better knowledge of data gives him greater assurance with regard to the conclusion. (c) Again, when he discovers that the serpent poison is such as paralyses the heart and nerve-centres whose action is essential to life, then the fatal effect of the poison would no more be a truth inductively reached but deductively established.

From these instances it is clear that the inferential process is essentially the same in every case—the passage of the mind from certain known truths

and (iii) from
analogy or
probability

In every form
of inference
we proceed
from the

known to the
unknown

To the infinite
mind all
knowledge is
intuitive and
certain

(1) In implicit
inference we
proceed from
case to case
without an
explicit
knowledge of
the general
truth which
constitutes its
ground

to an unknown one—though its form and degree of certainty vary with the amount of knowledge with regard to the data. What to one, having a deeper insight into the constitution of things, appears as necessary and demonstrative truth, to another, not having that insight, may seem to be but an inductive or probable conclusion according as a careful or imperfect estimate of facts constitutes his ground of inference. And if the compass of intelligence be imagined as widened still, then what to finite intelligence appears as a conclusion, to infinite intelligence appears as a vision, at this stage discursive reason is replaced by intuitive. To the Great Geometer every natural event is a demonstrated truth, in as much as it is inextricably connected with others by the necessary constitution of things.

§ 11. Implicit and Explicit Reasoning
Practical Wisdom (1) Implicit Reasoning is illustrated when we proceed from case to case with but a latent reference to the general truth justifying the conclusion. Thus, noticing that fire burns in some cases, we naturally infer that it will burn in another case, the ground of the conclusion—that fire always burns—operating only subconsciously in the mind. When, therefore, we reason from particulars to particular, we may be said to reason implicitly. The general proposition justifying our conclusion is not explicitly grasped the inductive and the deductive process, though involved, are present only in an implied form.

Implicit reasoning is often illustrated in the ordinary affairs of life. *Men of Practical Judgment or Tact* usually arrive at a sound conclusion, though they are often unable to advance reasons for the same. Wisdom gained from past experience enables them to take in a glance the innumerable circumstances justifying the conclusion; the inferential processes are often so very quick and complex as to escape notice. Thus, Burke speaks of the sound politician who does not proceed by abstract calculation but by, as it were, an intuitive glance comprehending the entire complex situation. What in popular language (as distinguished from the philosophic use) is called 'Common Sense' implies this sound practical judgment.

It is illustrated in common life in the form of practical judgment or tact,

which is popularly known as 'common sense'

(2) When, however, we establish a general conclusion by an examination of particular instances (induction), or when we apply a general principle to a particular case (deduction), we may be said to reason explicitly. The inductive inference in early life is usually vague, hasty, and consequently inaccurate. Development of the powers of observation and analysis renders subsequent induction clear, cautious, and accurate. Deductive inference may be either of the form of verbal transformation (immediate) or of the form of the application of a general principle to a definite case (mediate or syllogistic). Mediate deductive inference may again be illustrated in either of two different ways —

(2) In explicit reasoning we proceed either inductively or deductively.

Deductive inference is either immediate or mediate
The latter form consists

(a) an individual case may be given and we

(a) either in

finding
reasons

or (b) in
finding
applications

Conscious-
ness of self is
implicit in
early years.

search for a principle or law to explain it (what is called '*finding reasons*') , or

(b) a law or principle may be given and we try to apply it to or illustrate it in a particular case (what is called '*finding applications*').

§ 12. Development of the Idea of Self.

Consciousness involves, as we have seen, a relation between subject and object. If we extinguish the one, the other becomes unmeaning. In early years, the objective factor engrosses the attention of the child, the subjective being implicit. Self, though not explicitly grasped at this stage, is still present as an essential factor of consciousness. Analysis alone is necessary to render explicit what is implicitly present. With the development of mind, the child comes to have a more and more clear conception of the subjective factor. The development of self-consciousness is thus due to the development of the representative power. For it is this which brings into prominence the presence of self which, though always present, was not noticed before (*Vide Chap IV, § 3*)

This rudimen-
tary idea of
self is
associated
with the
bodily
organism.

*Three
prominent
stages in the
development
of this idea.*

The idea of self or personality which one possesses in adult life is a product of development. As in early years the attitude of attention is rather objective than subjective, the rudimentary idea of self is associated in the mind of the child with the corporeal frame through which alone impressions are received and movements, performed. We may broadly distinguish three stages in the development of the notion of self—(I) the early presentative, associated with the organism,

(2) the later representative, and (3) the most developed conception of an abstract enduring self. The development of the idea of self may, accordingly, be indicated thus :—

(1) *The Pictorial or Bodily Self.* The first idea of self that a child is able to form has reference to his ever-present body. In spite of variations in the subjective and the objective world, the bodily organism is perceived as always present. Earlier experiences of pleasure and pain are connected also with this organism.

(1) The
pictorial or
bodily self,

(2) *The Inner or Mental Self* As the power of representation develops the child attends more and more to subjective experiences—pleasures and pains, ideas and images. Organic sensations and the earlier emotions contribute their share to the development of this idea. When memory is sufficiently developed, the child can piece together his experiences and thus arrive at a more or less adequate representation of self.

(2) the inner
or mental
self,

(3) *The Idea of an Abiding or Enduring Self.* When the power of representation develops to a sufficient extent, the child is able to connect different psychical states into one whole. The continuance of the same organism helps to a very great extent to develop this idea. When the power of abstraction develops, and when the child comes to have definite and permanent ends in life and reflective estimates of personal experience, the conception of an enduring personality, with a relatively fixed character, develops. In weaving together mental experiences there are, no doubt, gaps

(3) an abiding
or enduring
self

here and there due to forgetfulness, sleep, serious illness These gaps, however, do not affect the consciousness of personal identity owing to the influence of the subconscious forces and the revivals of memory. Thus, the early crude consciousness of self, which is of a presentative character, associated with an organic frame, is gradually enriched, deepened, and refined by subsequent representative experiences and reflective estimates

Ideas of others are formed in an analogous way

✓ Ideas of Others Ideas of other persons are formed in much the same way as the idea of self The early presentative consciousness of self connected with an organism leads the child to interpret others in quite an analogous way Through natural sympathy he is able to construe the emotional expressions of others The knowledge of self, though implicit at first, colours the interpretation of other things observed by the child This explains the early anthropomorphic construction of the entire universe even the natural elements and physical objects are at first viewed as animated and endowed with a consciousness and a power analogous to what is found in oneself Thus, a child is disposed to attribute motives to natural events and is troubled with an inquisitiveness to know them Who can possibly answer all the possible '*whys*' of children — 'why the wind blows', 'why the fire burns', 'why the earth quakes', 'why the plant shakes', 'why the stars shine'? This early anthropomorphic tendency is gradually checked as the child notices differences in the behaviour of men, animals, and other objects Expressions of the emotions (particularly of sym-

The implicit self of the child reads an implicit self into everything else, and hence the early anthropomorphic view of the universe

pethy) and modifications of conduct brought about by motives generally serve as differentia to distinguish human beings from other objects. And in this way the child forms the ideas of other persons which gradually grow more and more definite and accurate with the multiplication of experience and the development of thought.

A comparatively correct knowledge of the human constitution leads the child to distinguish other persons from other objects.

§ 13. Conception of Law. A study of the processes of Thought has made it clear that there is ever the tendency on the part of the mind to assimilate or generalize, which becomes specially prominent with the growth of experience, rendering it necessary that the multiplicity should be reduced to unity. And the most important form of assimilation is the discovery of general connections among features or elements which enter even into the meanings of concepts. Now a law is nothing more than the expression in language of some uniform relation existing among the phenomena of a particular class. Thus, there are laws of mind and of matter, laws of nature and of man, laws that are ultimate and laws that are secondary. A law is the expression of uniformity in the behaviour of one thing towards another. The law of gravity, for example, expresses the way in which one lump of matter always behaves towards another and the law of relativity shows how a mental phenomenon generally affects another. A law is usually taken to imply the exercise of some power or energy (mental or material) in some uniform way, but this realistic reference is not accepted by all thinkers as essential to the conception of

The assimilative function of thought enables us to discover the general connections among things, which constitute what we call laws.

A law is believed to be the expression of energy and is characterized by uniformity

law. Uniformity of relation, it is said, constitutes its very essence, and as there are different forms of uniformity in the different departments of Nature and Mind, so the laws governing them are viewed as distinct (*Vide Elements of Morals*, Chap IX, § 9 and § 10 and *Principles of Logic*, Vol II, Chap XXIII, § 1)

The idea of interdependence develops out of the experience of reciprocity interpreted by the category of causality

✓ § 14. Idea of Interdependence The Idea of Interdependence evidently grows out of the experience of reciprocity noticed in the changes of distinct objects When, for example, we find that the culture of the individual affects the culture of the society, and *vice versa*, we are led to suppose that they are interdependent The reciprocity of changes, however, is construed by us by reference to the category of causality, and thus we arrive at an adequate idea of interdependence We are thus led to think that the condition or cause of change in one object is to be found in the other, and also conversely One of the earliest instances of interdependence noticed by us is one of mind and body a condition of the body affects the mind, and a condition of the mind likewise affects the body A wider and careful study of nature reveals that many things or phenomena of the universe, which, on a superficial view, seem to be independent, really act and re-act on each other What is known as Mutuality of Cause and Effect is but an aspect of Interdependence (*Vide Principles of Logic*, Vol II, Chap XVII, § 8)

✓ § 15. Conception of the World Development of the powers of thought with the concep-

In the life of
... .

tions of law and interdependence leads to the elaboration of the idea of the External World. In the life of mere perception and rudimentary imagination attention is directed to individual objects or images, as they occupy the mind, with at most a vague reference to an underlying ground believed to be their source. In such a life what is immediately present before the mind engages the attention, and there is no conception of a continuous self or of a continuous world. "On the perceptual plane," writes Prof. Stout, "there is no single continuous Self contrasted with a single continuous world. Self as a whole uniting present, past and future phases, and the world as a single coherent system of things and processes, are ideal constructions, built up gradually in the course of human development." (*Manual*, p. 278) In the life of thought, however, things are brought closely together by reference to their causal relations and points of affinity. Hence they now appear to us as constituting a system connected by relations of genera and species. When laws are discovered governing the relations of objects and their qualities, a better idea of a world as made up of parts is reached; and the idea of interdependence presents the world to us as an organic whole of which the members are vitally connected with one another. Wider and more careful study of facts and reasonings applied to them finally enable us to weave a connected tissue out of the materials supplied by the senses and so to represent a world of interconnected parts. Thus, the colours, sounds, tastes,

tion there is rather the experience of detached objects.

In the life of thought, however, these experiences are woven into the fabric of a consistent whole by means of the conceptions of law and interdependence.

Reasonings employed on materials gathered by wider and more careful

study of facts further develop the conception of a harmonious and self-consistent world

smells, and other features of objects and their relations to one another are conceived by us as constituting a harmonious whole, no part of which can possibly be severed from the rest. The different grades of being and aspects of existence are, likewise, viewed by us as inter-related elements which enter into the composition of one complex product, which may be regarded as at once a type of Beauty, Harmony, and Consistency (*Vide Principles of Logic*, Vol II, Chap XXIII, § 2.)

§ 16 Exercises

- 1 What is Thought? Indicate its different stages.
Explain the contrast and connection between Imagination and Thought
- 2 What is Comparison and how is it related to Analysis?
- 3 What is the relation of Language to Thought?
- 4 What are the grounds of Judgment? Indicate its relation to the other forms of Thought
- 5 Analyse the mental process of Reasoning and show how it involves the fundamental intellectual functions
- 6 Distinguish between Implicit and Explicit Reasoning and show that Reasoning always involves Abstraction
- 7 What do you understand by Generalization? How is it related to Abstraction?
- 8 Distinguish the logical from the psychological order of Reasoning
What is meant by the Logical Control of Thought-processes?
- 9 What is Knowledge? How is it related to Thought and Imagination?
- 10 Describe psychologically our ideas of 'Self' and the 'World'. How does the consciousness of Power develop?
- 11 Analyse the notions of Substance and Cause. How are these ideas formed?

12. Give a psychological account of the ideas of Substance, Cause, and Power ; and explain with their help the growth of the idea of the World in the Individual Mind.

13 Show the importance, both theoretic and practical, of the conception of the Unity of Mind

14. In what senses is Thinking the highest faculty of mind ? Show that the modes of Thought—Conception, Judgment, and Reasoning—are interconnected and involve similar activities of mind

15. Analyse the mental process in Reasoning, and explain the distinction between Inductive and Deductive Reasoning

16 Take an ordinary train of thought, and bring out fully the part played by pictorial images, by association, and by the activity of thought properly so called.

17 Examine the relation in which the three modes of Thought, distinguished as Conception, Judgment, and Reasoning, stand to one another, especially considering how far and in what way any of them may be regarded as more fundamental than the others.

18 What exactly is meant by saying that we "understand" a proposition ? Take, for examination, some proposition in which both the subject and the predicate are abstract terms.

19 Give what you take to be the ultimate psychological analysis of the process of Reasoning

20 What do you regard as the fundamental mental operation in Reasoning ? How would you define the range of this operation in mental life ?

21 Reasoning has been defined as an act of Mediate Comparison. What mental powers are involved in such an act ? and how far are they possessed by the lower animals ?

22 How would you distinguish between Reasoning and a Train of Ideas connected by means of Suggestion or Association

- 23 Analyse carefully the state of mind of one who is thinking out a problem or guessing a riddle
- 24 Examine the grounds and value of the distinction between Practical and Speculative Reason
- 25 . Indicate the nature, conditions, and fundamental forms of Judgment
- 26 What do you understand by Law? Is it in any way connected with our conception of the World and its parts?

BOOK IV.

THE FEELINGS

CHAPTER XIV

SIMPLE FEELINGS

§ 1 Definition of Feeling Feeling^{*} as an elementary experience cannot, strictly speaking, be defined. Its meaning may, however, be indicated, more or less clearly, partly by reference

* The term 'Feeling' is used in various senses, of which the essence seems to be passivity. The central meaning of the term is thus 'being affected'. Those who hold that such a condition is either agreeable or painful, take pure feeling as either pleasure or pain, or, as it is briefly put, 'pleasure-pain'. But those who admit mere emotional agitation as also a form of feeling, take it to mean not merely 'the hedonic quality' of consciousness but also its excited condition. Thus, Bain says "Feeling is excitement". The different senses in which the term is used are—(1) sensation in general, (2) the sense of touch (*e.g.*, one feels his way in the dark), (3) vague indistinct consciousness as distinguished from clear and distinct consciousness, (4) consciousness in general, and (5) the emotional aspect of consciousness. Of these senses the second is the popular, and the last, the psychological usage. Feeling as such is not equivalent to presentation; it is rather the affective or emotional tone of presentative consciousness. It is, as Dr Ward says, "a purely subjective state, at once the effect of a change in receptive consciousness and the cause of a change in motor consciousness". Hence he contends we can never know feeling, though we can know of it, *i.e.*, its exciting cause or its effect on cognition and conation. 'Feeling' as an abstract emotional condition should be distinguished from '*a* feeling' which is a concrete mental experience involving all the factors of consciousness. It should also be noted that there is no adjective corresponding to the substantive feeling. "True," writes Robertson, "the newspapers say, 'he spoke in feeling terms'; but such usage is not psychological. In psychology the adjective 'emotional' corresponds to the noun 'feeling'. Hence it should be borne in mind that the adjective 'emotional' has a wider significance than the noun 'emotion'." (*Psychology*, p 22.)

Feeling is pre-eminently a subjective state of agitation or excitement usually characterized by pleasure or pain

Neutral feeling is denied by some writers, while affirmed by others

Neutral feeling is of the character of shock or excitement

Testimonies of Bain and Sidgwick

to what it excludes and partly by reference to what it includes. It may be said to be a mode of consciousness viewed apart from its objective reference or active prompting. It is pre-eminently a subjective mood—a mental condition of excitement which usually manifests itself in the form of what is called pleasure or pain. As marked by pleasure or pain, it may be said to be the hedonic tone or aspect of our experience.

It is a matter of dispute among psychologists whether, besides pleasure and pain, there is any neutral or indifferent feeling. Some (*e.g.*, Sully and Stout*) are disposed to deny such a condition, while others (*e.g.*, Bain, and Sidgwick) affirm its existence. Wonder or surprise, for example, is said to be merely of the character of a shock or excitement, without any accompaniment of pleasure or pain, such as we find in the rustics' estimate of the village school-master so well described by Goldsmith—

“And still they gazed, and still the wonder
grew,
That one small head could carry all he knew.”

“We may,” writes Bain, “have feeling without either pleasure or pain. Surprise is a familiar instance. Some surprises give us delight, others cause suffering, but many do neither. A painful emotion may be deprived of its pain, and yet leave us in a state of excitement, and still oftener, a pleasurable

* *Vide Sully's Outlines of Psychology*, New Edition, p. 315, and *Stout's Manual of Psychology*, Second Edition, p. 62

emotion may cease as delight, but not as feeling. The name excitement applies to many such states. There may be a certain amount of pleasure or of pain, but we are conscious of a still greater amount of mere agitation or excitement." (*Mental Science*, p. 217) Sidgwick likewise refers to the implied assumption in Hedonism of "a hedonistic zero, or perfectly neutral feeling, as a point from which the positive quantity of pleasures may be measured." (*Methods of Ethics*, p. 124.) And he observes, "It is not absolutely necessary to assume that this strictly indifferent or neutral feeling ever actually occurs. Still experience seems to show that a state at any rate very nearly approximating to it is even common. and we certainly experience continual transitions from pleasure to pain and *vice versa*, and thus (unless we conceive all such transitions to be abrupt) we must exist at least momentarily in this neutral state" (*Ibid.*, pp. 124-125.) Feeling, according to this view, is characterized by agitation, excitement, warmth—agreeable, disagreeable, or neutral.

Writers are neither agreed as to whether both pleasure and pain are equally positive experiences or only one of them is positive, the other being but its negation. English writers generally (e.g., Bain, Spencer, Sully, Stout) maintain that both are positive experiences—the one being cheering and exciting, while the other as generally depressing and damping; and hence the one is often described as positive and the other as negative. Many writers, however, both of ancient and modern

Some writers hold that both pleasure and pain are positive experiences; while others contend that only pain is positive, pleasure being but its absence.

times (*e.g.*, Kapila, Buddha, Plato, Kant, and Schopenhauer) contend that pain is the positive experience, and pleasure is but its absence (*Vide Chap V, §4.*) Hoffding very properly observes in this connection, "It is in itself a meaningless employment of terms to call a pleasure or pain negative. All feeling as such is a real, consequently a positive, state. Even "illusory" "or chimerical" joy is real joy. The feeling that is mainly determined by contrast with another feeling is not on that account less real and positive. Hallucinations of pain are real substantial pains. The hypochondriac feels real discomfort, and is not to be talked out of it. What is meant by such expressions as positive and negative, true and untrue, can in this connection be only the reality or unreality of the object of feeling. The feelings cannot be criticized except by criticizing their causes and their objects" (*Outlines of Psychology*, p. 287)

The importance of the feelings is two-fold
(1) Intrinsic importance lies in their direct interestingness,

§ 2 Importance of the Feelings The importance of the feelings may be said to be two-fold —(1) partly intrinsic and (2) partly extrinsic. (1) The intrinsic importance lies in the value of the feelings themselves without any reference to any thing else (a) Feelings constitute, so to speak, the interesting side of our experience. Cognition or volition has often a value because it subserves some feeling, but feeling is, for the time being at least, an end in itself (b) Feelings constitute pre-eminently our *subjective experience*. In cognition as well as in volition our attention is directed to an external object or an outward result, but in feeling

our attention is directed inwards—to subjective experiences of pleasure and pain.

(2) The extrinsic importance of the feelings lies in their being conducive to the cultivation of the other sides of our mental life. Due cultivation of the feelings creates the tastes and strengthens the motive forces for the legitimate and higher exercises of Intelligence and Will and thus prepares the way for the proper culture of the mind. Thus, objects of knowledge and of pursuit which might have failed to attract any notice, may in course of time acquire a derived interest through the culture of the emotions and sentiments.

It may be mentioned in this connection that the importance of feeling to a finite creature is generally very great. Instincts as a rule guide us by feelings, and often in emergencies feelings indicate the way, when intellect is confounded. It is not meant by this that feelings never mislead us, which they undoubtedly do—specially when they have been the outcome of growth and exercise. But in normal life and healthy constitution, pleasure as a rule is an index to what is conducive to our welfare, and pain, to what is detrimental to our interests. (*Vide Elements of Morals*, Chap XII, § 11 and Chap. XVIII, § 5.) Thus, both Spinoza and Spencer seem to be in the right when they contend that perfection or blessedness can be reached only by avoiding the miseries of life—the one of course interprets metaphysically what the other construes biologically, but it is urged by both that we can be ushered into the ideal world

and (2) extrinsic importance consists in their being an important means to the due cultivation of the mind

To finite beings feelings are of great importance as ordinarily regulating activity

Views of Spinoza and Spencer.

of excellence only through the throes of sufferings
 ' Feeling is, so to speak, a subjective barometer indicating the drift of our activity—whether towards or away from true progress.

Relativity is prominently illustrated in the case of the Feelings owing to their marked subjective character.

§ 3 Relativity in Feelings. We have seen that relativity is a general law of mind (*Vide Chap. IV, § 7*), and hence it is illustrated in a very prominent form in the case of the Feelings, which are pre-eminently subjective experiences. All our pleasures and pains are relative to prior experiences, what pleases a man of moderate means does not please a millionaire, what pleases the scientist does not please the rustic, what pleases the society man may even be disgusting to one leading a secluded life. Thus our hopes and fears, our joys and griefs are supremely relative in character.

"And is it that the haze of grief
 Makes former gladness loom so great ?
 The lowness of the present state
 That sets the past in this relief ?"

(Tennyson)

Pleasures and pains are relative to our psycho-physical condition and acquirements

Surprise is an entirely relative feeling

Hence pleasures pall through satiety and we cease to view as definitely agreeable what has become habitual or customary. Thus, we realize the pleasures of health when ill, and appreciate the value of liberty while in confinement or under constraint. What we call 'surprise' is entirely a relative feeling, due to the failure of our expectation. We are, for example, surprised if a stone floats or a cork sinks, a friend deceives or a foe benefits us. (*Vide Chap. XV, § 12.*) Our pleasures and pains are, therefore,

generally relative to our physical and mental condition—health or disease, knowledge or possession, vigour or weakness

The relativity of the feelings was recognised by the Italian physician and mathematician Cardanus (1500-1576), before the formulation of the general psychological law of relativity by Hobbes (1588-1679). Relativity in feeling is often missed because (1) it is uniformly characterized by contrast, which determines its very existence, and (2) the new feeling engrosses our attention and so eclipses the old. Nevertheless, it is illustrated in our entire emotional experience from the simplest sense-feelings to the most complex sentiments, such as those of beauty and sublimity. In fact, the physiological conditions indicate that without change of stimulation the nerve-organs grow fatigued and sensibility is deadened. Energy in the centres is essential to all vivacity of experience—intellectual, emotional, or conative.

§ 4. Feeling and Presentation The cognitive and the emotive factor are very closely connected with each other. The pleasure or pain which we experience is an accompaniment of a presentation or its ideal representative. Nevertheless it may be presumed that presentation is possible without feeling, but not the reverse. Such a supposition seems to be tenable on the following grounds:—(1) Sometimes we experience a blow without being simultaneously aware of its painful concomitant (2) By certain medicines (*e.g.*, anodyne) our susceptibility to pleasure or pain may be

The relativity of feeling is missed owing to its uniformly relative character.

Feeling usually accompanies a presentation or representation.

Presentation is possible without a marked emotional tone

deadened or diminished, though the cognitive factor continues intact (3) That the several senses can be arranged in a scale, with the cognitive and emotive factors varying inversely, supports the conclusion that in extreme cases there may be a presentation without an affective factor. For these reasons it appears that there may be a presentation without an element of feeling.

Presentations have various qualitative differences, while feelings are characterized by the broad difference of pleasure and pain.

The difference between a presentative and an emotive factor lies also in the fact that a presentation has always some definite quality and local character, while these are absent from feeling. Of the four general characters—Intensity, Duration, Quality, and Local Character—the first two are present in both the last two (namely, quality and local character) are peculiar to presentation. No doubt, feelings are also characterized by such qualitative differences as pleasure and pain, but within these broad limits there are not the various forms of qualitative difference which characterize presentations. Two main results may, accordingly, be gathered (1) presentation and feeling vary inversely as each other in their intensities, and (2) there can be no feeling without presentation, though there may be the latter without the former.

All feelings (whether sense feelings or emotions) are closely connected with organic conditions

§ 5 Feeling and Organism Feelings, as indicated above, are closely connected with organic conditions. Sense-feelings are connected with the state of the organs stimulated and the general nervous tone of the organism. And even emotions have their organic conditions in the nervous and muscular processes connected with them. Every

feeling, then, in proportion to its strength, affects more or less the organic processes and movements. The *Law of Diffusion* expresses this relation thus — "According as an impression is accompanied with Feeling, the aroused currents *diffuse* themselves freely over the brain, leading to a general agitation of the moving organs, as well as affecting the viscera" (*Bain's Mental Science*, p. 216) And over and above this general connection we find there are special connections between particular forms of expression and the special emotions. Thus, the organic conditions of fear or anger are not the same as those of grief or joy. Some writers (*e.g.*, Prof. James) are disposed to hold that these organic conditions constitute the very essence of the different emotions. "Our natural way of thinking about these coarser emotions," he writes, "is that the mental perception of some fact excites the mental affection called the emotion, and that this latter state of mind gives rise to the bodily expression. My theory, on the contrary, is that the *bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur is the emotion*. Common-sense says, we lose our fortune, are sorry and weep; we meet a bear, are frightened and run, we are insulted by a rival, are angry and strike. The hypothesis here to be defended says that this order of sequence is incorrect, that the one mental state is not immediately induced by the other, that the bodily manifestations must first be interposed between, and that the

The Law of Diffusion

According to Prof. James the organic conditions constitute the very essence of the emotions ,

more rational statement is that we feel sorry because we cry, angry because we strike, afraid because we tremble, and not that we cry, strike, or tremble because we are sorry, angry, or fearful, as the case may be. Without the bodily states following on the perception, the latter would be purely cognitive in form, pale, colorless, destitute of emotional warmth. We might then see the bear and judge it best to run, receive the insult and deem it right to strike, but we should not actually *feel* afraid or angry. A disembodied human emotion is a sheer non-entity. I do not say that it is a contradiction in the nature of things, or that pure spirits are necessarily condemned to cold intellectual lives, but I say that for us emotion dissociated from all bodily feeling is inconceivable," (*Text-Book*, pp 375—380) This view of Prof James, however, seems to be an extreme one. The organic sensations and expression, no doubt, constitute an important factor of an emotion, but these alone can hardly be said to constitute it

but the view
is scarcely
tenable.

The Law of
Self-
Conservation
reveals also
the close
connection
between the
quality of a
feeling and
the organic
condition or
attitude.

Another fact revealing the close connection of feeling with organism is that pleasure generally has the tendency to heighten vital energy for the time being, while pain the tendency of lowering it. This relation is embodied in the form of a law known as the *Law of Self-conservation* which is enunciated by Bain and Spencer thus "States of pleasure are concomitant with an increase, and states of pain with an abatement, of some or all, of the vital functions." Thus, we have generally the invigorating influence of pleasure, at least for

the time being, and the depressing influence of pain.* Fechner is disposed to hold that these effects are due to the harmony or discord of the vibrations of the nerves connected with conscious life

What are called the *vital feelings* bring out also how organic conditions enter even into our vague or indefinite feelings of pleasure and pain. These vital feelings merely represent the organic sensations, which, as we have seen, indicate the healthy or unhealthy conditions of our organism (*Vide Chap. VIII, § 5*). The several bodily processes (such as digestion, respiration, circulation), which do not ordinarily give rise to a definite feeling of pleasure or pain, generally determine the background of feeling in the form of *consciousness* or *malaise*. The mental 'tone' or 'mood,' as determined by it, we describe in various forms of expression—such as feelings of 'health,' 'comfort,' and 'briskness' or of 'ennui,' 'fatigue,' and 'depression.' The peculiarity of these vital feelings is that they are not referred to their respective causes or conditions, but are merely felt as the indefinite outcome of certain life-processes

§ 6 Laws of Feeling. The laws or conditions regulating the production of the feelings may

* Some (e.g., Prof. Stout) prefer the term '*displeasure*' to pain as indicating the opposite of pleasure. The term pain, it is urged, is ambiguous, since, besides signifying (1) the general displeasurable condition, it (2) signifies also the specific sufferings connected with certain organic conditions, such as pricking, shooting, gnawing, throbbing, burning, beating, crushing. Thus, popularly certain organic sensations are distinctly marked out as 'pain,' such as "the pains of hunger, of scalding, or burning, or of toothache" (*Vide Stout's Manual of Psychology*, pp. 61 and 226.)

The vital feelings as organic sensations bring out also the close connection between the mental tone or mood at any time and its organic ground

be classified by reference to their exciting causes. These may operate either (I) singly or (II) in combination. And their intensity, quality, and mutual relation determine also the character of the consequent feeling. Let us briefly notice these conditions one by one

(I) Laws relating to single stimulation

(I) Laws Relating to Single Stimulation or Exercise When a stimulus at a time is presented to the mind or the mind is disposed to act in a single direction, the following circumstances regulate feeling —

(1) Moderate stimulation is agreeable, while excessive or feeble stimulation is painful

(I) *Intensity of Stimulation* Generally speaking, it may be said that a moderate stimulus or a moderate exercise is agreeable, as we tend towards the extremes, the experiences become more and more painful. This law is illustrated either (a) when we are comparatively passive, being under the influence of outward stimuli, or (b) when we are comparatively active, when stirred by inward impulses or dispositions (a) An outward stimulus, if moderate, is agreeable, if strong or feeble, is painful (b) Similarly, exercise of an organ, propensity, or faculty, if moderate, is agreeable, if severe or deficient, painful This law of stimulation* may be explained (i) physiologically and (ii) psychologically (i) the exercise of a particular centre or nerve in a severe form produces waste and

* The pleasures of repose, though seemingly contradicting the law of stimulation, are really in harmony with it. The importance of such pleasures lies partly in relativity and partly in a comparatively feeble exercise of our powers. A soft tone pleases because it rouses attention. Gentle exercise when prolonged amounts to moderate stimulation and thus gives rise to pleasure.

fatigue. Prolonged exercise, similarly, is injurious. (ii) An undue strain upon attention is fatiguing. To keep our attention fixed for a long time or closely to attend to something unduly draws upon mental energy.

(2) *Character of Stimulation Determined by Quality.* The form of a stimulus determines also the resulting feeling. Apart from considerations of intensity covered by the law of stimulation mentioned above, there are certain stimuli which, in their very nature, are either agreeable or disagreeable. Sweetness, for example, is agreeable generally ; and bitterness, disagreeable likewise. Thus, there is a correspondence between the form of a stimulus and the consequent feeling.

(3) *The Law of Change · Relativity* Prolonged stimulation of any organ or faculty leads, as explained above, to fatigue and thus to pain. It may be explained (i) physiologically as well as (ii) psychically : (i) The centres concerned are exhausted , (ii) attention also is overpowered. Thus, monotony is painful, and change is generally agreeable. Change may be (a) either in the intensity of exercise or (b) in the kind of exercise. (a) A transition from a feeble to a comparatively intense exercise is stimulating and so agreeable ; but a decline from a moderate to a feeble stimulation is usually painful (b) The exercise of one organ or faculty after another does not exhaust any particular centre or faculty , hence it gives rise to pleasure. We have seen that most of our pleasures and pains may be traced to this law of change the so-called

(2) The form or character of a stimulus determines also the resulting feeling

(3) While prolonged stimulation is painful, change either in the intensity or in the kind of exercise is agreeable

negative pleasures or negative pains are of this character. The pleasures of health and of liberty are chiefly explicable by reference to the pains of disease and restraint. Similarly, pains resulting from loss or absence are evidently due to relativity. The essential relativity of pleasures led Plato and the Hindu philosophers generally to regard all pleasures as negative, viewed merely as the privation of pain.

The law of change, however, is modified by the effects of growth, habit, accommodation, and association

The law of change, however, is subject to an important modification (a) When any faculty or organ is exercised for a considerable length of time, it grows stronger and stronger, thus a subsequent intense exercise of the organ or faculty may not give rise to pain (b) Moreover, association brings other pleasures indirectly connected with an exercise. A walk by the river-side, for example, may lose its first attractiveness through familiarity, but it acquires additional pleasures through association. It is thus that habit, accommodation, and association modify to an important extent the law of relativity. Whatever we are accustomed or habituated to do or to experience acquires by repetition and association the connected pleasures or pains. It is thus that habitual ways of action, familiar objects, domestic surroundings continue to be the objects of our interest or affection.

(II) Law relating to plural stimulation

(II) Law Relating to Plural Stimulation or Exercise - Juxtaposition of Stimuli The very constitution of man leaves him open to a variety of stimuli at the same time. When several organs or faculties are

thus required to be exercised simultaneously, *the law of harmony and conflict* determines the character of feeling. There is intimate connection among the different parts of our psycho-physical constitution. Harmonious exercise of the different organs or faculties thus leads to pleasure, while a conflict among them gives rise to pain. In fact, the different parts of our constitution are so very closely connected that the nerve-current produced in connection with one tends freely to diffuse itself over the whole system (*Law of Diffusion*). all the parts of our body, so to speak, chime in with every other part. If, therefore, there be one kind of stimulation in one part and a different kind of stimulation in another part, this produces discord, conflict, pain. When expectation is fulfilled, when there is concurrence of testimony, there is pleasure according to the law of harmony. In disappointment, in contradiction, in the opposition of impulses, there is on the other hand distraction and hence pain according to the law of conflict.

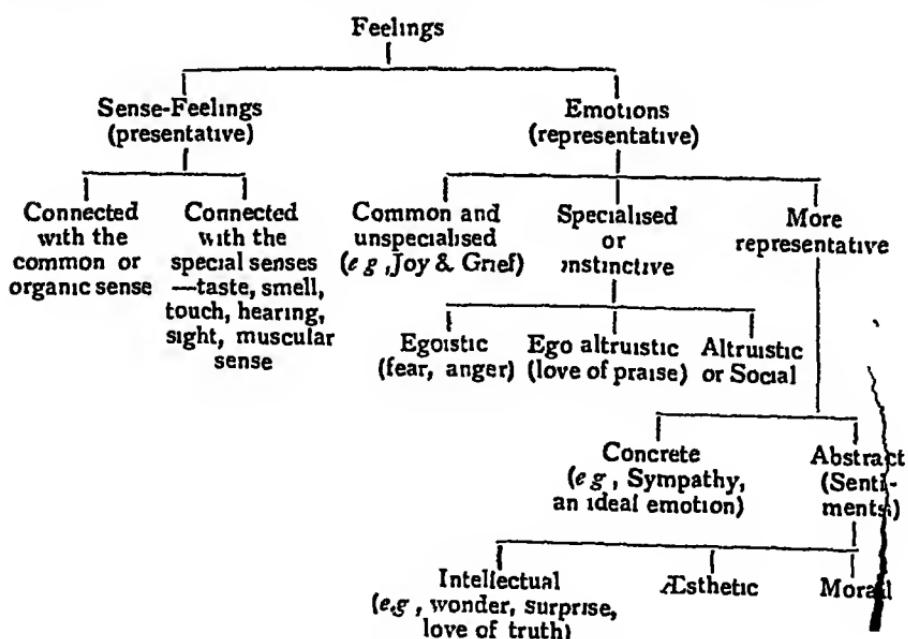
§ 7. Classification of Feelings. Feelings have been classified differently by different writers. The difficulty of such a classification lies specially in the fact that they are subject to growth, so that what in infancy seems to be simple, in adult life appears as complex. As joy and grief, wonder and surprise, anger and fear, love and hate are pre-eminently subjective conditions and thus run a continuous course of development, it is comparatively difficult to assign them a definite place in a classified list. We may, however, following

While
harmony is
agreeable,
discord or
conflict is
painful

The growth
of the
feelings
renders their
classification
difficult

Spencer's
Classification.

Spencer, broadly divide them into four main classes corresponding to the degrees of presentation and representation involved in them. Thus, we get—(1) Presentative Feelings, such as the vital feelings and sense-feelings, (2) Presentative-representative Feelings, such as fear and grief, ordinarily excited by actual experience, (3) Representative Feelings, such as sympathy, and (4) Re-representative Feelings, such as the moral and æsthetic sentiments. But even such a classification is not altogether free from defect, since fear and grief are not infrequently representative in character (when they are directed to some impending or future evil) and sympathy too is often evoked by present suffering. The following comparatively full classification given by Sully may provisionally be accepted —

Sully's
Classification.

We shall examine the different forms of Representative Feelings, *i. e.*, Emotions and Sentiments, in the next chapter. Let us, therefore, conclude this chapter with a brief reference to the characteristics of Presentative Feelings and the character of the development of the Feelings generally.

We shall examine Emotions and Sentiments in the next chapter.

§ 8 Forms and Characteristics of Presentative Feelings Presentative Feelings include, as indicated above, (1) the Vital Feelings, or General Sense-Feelings and (2) the Special Sense-Feelings or pleasures and pains connected with the exercise of the special senses.

(1) *The Vital Feelings*, as we have seen, are vague and indefinite in character, being indices to the conditions of our organism. (*Vide* § 5) The affective, as distinguished from the presentative, feature is very prominent in them, and they are specially marked by a disagreeable tone, the ordinary pleasures of health failing to attract our notice.

Two kinds of Presentative Feelings.

(1) The Vital Feelings, which are often vague and marked by a disagreeable tone,

(2) *The Special Sense-Feelings* are ordinarily excited by the peripheral stimulation of sensory nerves. The lower senses, though contributing to a great extent to the coarser enjoyments of life, generally fail to furnish refined pleasures which often enter into the Emotions and Sentiments. Such pleasures are generally supplied by the two most discriminative senses—Sight and Hearing. (*Vide* Chap. VII, § 3) Sense-feelings are doubly modified with the growth of experience —(a) The primitive intensity of sensuous enjoyment declines

and (2) the Special Sense-Feelings, which contribute to coarse or refined enjoyments according to the character of the sense stimulated

Experience modifies Sense-Feelings by (1)

lessening primitive intensity and
(2) by enriching and widening them by associative elements

Our mental life being essentially cognitive, the development of feeling is closely connected with the development of intelligence

The testimony of Hoffding

with the repetition or multiplication of experience, while the presentative or the intellectual factor grows more and more prominent (6) There is a compensating advantage due to the influence of association For example, the crowing of the cock or the cawing of the crow, though gradually losing its pristine attractiveness, subsequently suggests pleasures connected with the dawn or fair weather by association

§ 9 Development of Feeling The development of Feeling is, no doubt, a part of the general course of Mental Development explained above (*Vide* Chap. VIII, § 5) We have seen that our mental constitution is essentially rational (*Vide* Chap V, § 4), so that the development of Feeling and Will presupposes the development of Intelligence Higher Feelings and Volitions appear only when complex representations become possible There evidently can be only rudimentary Sympathy if imagination has developed but little , and the estimate of beauty or deliberative action can scarcely develop until complex relations are apprehended by Thought Feeling, then, cannot grow merely out of feeling , it can grow only through the development of thought "The combination of ideas", writes Hoffding, "seems to be the channel through, which feelings mingle with one another It is through the relation of thoughts to new thoughts that feelings pass into new feelings Since, however, the movement of feeling is slower than that of the thoughts, it is not surprising that intellectual progress is as a rule in advance of

the development of feeling" (*Psychology*, p. 240.) And there are two main principles which widen and enrich the feelings by extending and combining the thoughts. These are—(1) the law of transference and (2) the law of combination, coalescence, or fusion. (1) By the law of transference our feelings are transferred from one object to another by the contiguous bond. (*Vide Chap X, § 10*) Thus, the child comes to dislike the surgeon who performed an operation or to like the bearer who conveyed good news. (2) And when several ideas converge on one and the same object, the resulting feeling turns out to be more complex or voluminous. Thus, there are the complex and deep feelings connected with home, friends, and country due to the variety and multiplication of experience connected with them. When one and the same surgeon repeatedly performs operations on the same child, he is viewed by the child not merely with dislike but with horror, while, to the adult, the same surgeon becomes an object of deep love and even affection, since his acts are understood by him as necessary means to health and happiness.

It is a matter in dispute among psychologists whether the complex feeling is merely a sum of the elementary feelings that are brought together, or it is a new feeling generated by their combination. If all psychoses are really the outcome of the expenditure of mental energy and they are not merely the mechanical sum of elements spontaneously brought together, then it would seem that the emotions which emerge from new combinations

Two laws helping the development of the feelings.
(1) the law of transference

and (2) the law of combination.

The feelings which develop out of new combinations of elements are really new emotions and not merely combinations of the original elements

Testimonies
of Wundt

have distinctive characters of their own not resolvable simply into the old elements. "Every feeling", writes Wundt, "is a qualitatively simple and undecomposable mental state. This fact does not, of course, exclude the possibility of there being in consciousness several simultaneous feelings. Only, these simultaneous feelings always combine in a *total feeling* which possesses a unitary character, and cannot, therefore, be regarded simply as the sum of the original particular feelings. The *oscillatory* and the *discordant feelings* are, perhaps, the most instructive examples of these complex affective states. In the first group, opposing feelings alternate with each other in rapid succession. But there is also a continuous modification of one affective phase by the other, so that a new feeling with a characteristic quality of its own arises alongside of the primary changing feelings. Its quality is, of course, dependent upon those of the original feelings, but it cannot be analysed into them. Its intensity is constantly altering, so that at one moment the primary feelings, at another this new permanent feeling which is characteristic of affective oscillation, predominates in consciousness. Affective discordancy is directly derived from affective oscillation. It occurs when the oscillations of feeling follow each other very quickly, and the successive feelings themselves are strongly opposed. We have an example of this from the sense-feelings in tickling, and from the intellectual feelings in doubt, while the dissonance of two clangs may be taken to exemplify it in the

field of the elementary æsthetic feelings . In all these cases, every particular feeling and every total feeling have their own characteristic quality, in virtue of which they stand in relations of agreement and disagreement to other feelings, though they are never analysable into them So that nothing can be more erroneous than the opinion sometimes held that the entire world of feeling is composed of a certain sum of elementary feelings,—perhaps sense-feelings,—of approximately constant quality. The essential characteristic of feeling, especially of the higher feelings, is rather an inexhaustible wealth of qualities, new qualities arise from the mutual influences of simultaneous feelings, and from the induction of present by antecedent feelings. And to this we must add that the worth of the feelings constantly increases as the relations in which they stand become more complex, for it is these relations which determine the influence of any particular feeling upon our entire mental life." (*Human and Animal Psychology*, Eng. Trans., pp. 219—221) Even the view of Bain—that combination of elements "originates new states which acquire a permanent and generic form, wherein the simple elements cease to be apparent"—seems to support this position.

and Bain.

§ 10 Theories of Pleasure and Pain We have seen that Feeling as a mental faculty co-ordinate with Cognition and Conation, has been recognised only in modern times (*Vide Chap. V, § 4*) Nevertheless, pleasure and pain as mental experiences have prominently engaged the atten-

tion of philosophers always. Thus, the Hindu and the Greek philosophers generally, in attempting to solve the problem of the world, tried to discover the causes of suffering and misery with a view to the attainment of bliss and peace. Three different theories have been started by modern writers to explain the phenomena of pleasure and pain. These are.—

Three modern theories

(1) Psychological Theories connecting pleasure and pain with the exercise of mental faculties

Dr Ward explains them by reference to attention

(1) *The Psychological Theories* trying to explain pleasure and pain by mental conditions alone. Thus, Dr Ward holds that "There is pleasure in proportion as a maximum of attention is effectively exercised, and pain in proportion as such effective attention is frustrated by distractions, shocks, or incomplete and faulty adaptations, or fails of exercise owing to the narrowness of the field of consciousness and the slowness and smallness of its changes." (Article on Psychology, *Encyclo. Brit.*, XX, p. 70) According to him, in agreeable experience attention is easily adapted or accommodated to presentations, and the field of consciousness is enlarged owing to the quick and rich flow of ideas and the gentle and soothing influence of certain organic sensations influencing our mental life, while in disagreeable experience attention is adjusted with difficulty or overpowered, and the field of consciousness is contracted owing to the slow and scanty progress of ideas and the depressing and inhibiting influence of the connected organic sensations. Similarly, Prof Stout maintains that "whatever obstructs or disables perceptual process at the time of its occurrence is disagreeable, whatever favours or furthers it is agree-

Prof Stout
explains them
reference
attention,
it, and
.ion.

able," (*Manual*, p. 288.) And this obstructive or furthering effect may be felt either in the exercise of attention or in the performance of action. Thus, while success is agreeable, failure is painful. Rhythm (e.g., dancing, marching to music), helping effective motor adjustment, is a source of pleasure, while irregular succession, obstructing easy adjustment, is a source of pain. There are some pleasures and pains which, according to him, are due to preformed associations, such as the agreeable experience suggested by the sight of a delicious drink or the disagreeable experience suggested by the sight of some loathsome food.

(2) *The Biological Theories* trying to explain pleasure and pain by reference to the conditions of life. (a) The *evolutionary form* of these theories maintains that pleasure is conducive to life and progress, while pain is detrimental to them. "Pains," says Spencer, "are the correlatives of actions injurious to the organism, while pleasures are the correlatives of actions conducive to its welfare", since "it is an inevitable deduction from the hypothesis of evolution, that races of sentient creatures could have come into existence under no other conditions." (*Principles of Psychology*, I, p. 279) (b) The *empirical form*, likewise, holds that pleasure heightens energy, while pain depresses it. "States of pleasure," says Bain, "are concomitant with an increase, and states of pain with an abatement, of some, or all, of the vital functions" (*Mental Science*, p. 75.) Prof. Ribot advocates an analogous view.

(2) Biological Theories connecting pleasure and pain with life-processes.

(a) The evolutionary form regards pleasure and pain as means of evolution. Herbert Spencer.

(b) The empirical form connects them with the elevation or depression of vital spirits.

(3) Physiological Theories connecting pleasure and pain with the waste and repair of nerve tissues.

The biological and physiological theories, though indicating the organic conditions of pleasure and pain, cannot be accepted as their final explanation

(3) *The Physiological Theories* trying to explain pleasure and pain by reference to the special conditions of the nervous system. The supporters of these theories maintain that pleasure or pain is always due to the relations of wear and repair in the nervous tissue, so that pleasure may be viewed as an accompaniment of considerable stimulation with but little fatigue, i.e., sufficient nerve action with little unrepaired waste.

With regard to these theories it may be said that the biological and physiological doctrines, though indicating the organic and nervous conditions of pleasure and pain, do not satisfactorily explain their origin and character as psychical phenomena. It may, for example, be said against the evolutionary theory of Spencer that every pleasure is not conducive to life (*e.g.*, the pleasures of the debauchee) and every pain is not injurious to it (*e.g.*, labour-pain). It may similarly be said against the law of self conservation as enunciated by Bain, that there are grave organic derangements (such as consumption or heart disease) not accompanied by pain, and pain may at times be stimulating (such as the lash of a whip). Neither do the physiological theories satisfactorily explain the hedonic experiences. The pain of tooth-ache, for example, seems to be out of all proportion to organic injury involved, and the pleasure of music, out of all proportion to organic repair. As Prof. Stout observes, "We are pleased when we hit a nail on the head and displeased when we miss it, there seems to be no reason

whatever for supposing that in the one case surplus-stored energy is being used up, and in the other not" (*Manual*, p 293) It would seem, therefore, that the psychological theories are right in connecting pleasure and pain with the form and degree of mental exercise Thus, harmony is agreeable, while discord, painful "Pleasure," as Hamilton says, "is the reflex of the spontaneous and unimpeded exertion of a power of whose energy we are conscious Pain, a reflex of the overstrained or repressed exertion of such a power" (*Lectures on Metaphysics*, II, p 440) If mind is essentially an active principle, its proper exercise yields pleasure, and an improper exercise brings pain There are, no doubt, connected nervous and organic conditions, but these do not finally explain our mental experiences without any reference to mental agency. Pleasure, as Aristotle says, is rather the consciousness of a perfect or unimpeded energy exercised in connection with sense or intellect Feeling, as we have said, is but a subjective barometer indicating the character and degree of the exercise of our powers

The psychological theories explaining the feelings by reference to mental activities seem to be correct.

Pleasure and pain are generally indices to the proper and improper exercise of our powers

§ 11 Exercises

1 Define Feeling and explain its characteristics as distinguished from Cognition and Volition

2 Point out the importance of Feeling as one of the main constituents of mental life. State the law connecting pleasure and pain with quantity of stimulation

3 Illustrate the relation of Feeling to Presentation Can a feeling independently revive another? or is the transition always effected through the association of cognitive elements?

4 Indicate briefly the importance of the culture of the feelings How ought it to be regulated ?

5 Explain the relation between Feeling and Cognition, and illustrate the law of the development of Feeling

6. Give examples of pleasures and pains due wholly or mainly (a) to *association* and (b) to *habit*. Explain the mental processes involved. What special meaning does psychology give to the term Feeling ?

7. Discuss the question whether pleasure and pain are equally positive and fundamental modes of Feeling

8 Explain generally the position of Feeling in Mental Life, and consider the grounds for distinguishing kinds of Feelings .

9 How would you distinguish Feelings from Cognition ? Classify the chief forms of Feeling, and explain the general principles of relativity, contrast, and association, as applied to them

10 Indicate the relation of Feeling to the organism Explain the Law of Diffusion

11 Explain the Laws of the Feelings, illustrating them by concrete examples

12 Trace the development of Feeling, indicating its prominent forms

13 What do you understand by a Simple Feeling ? Can the Feelings be classified according to the degree of their complexity ?

CHAPTER XV

COMPLEX FEELINGS EMOTIONS AND SENTIMENTS

§ 1. Sense-Feelings, Emotions, and Sentiments The points of difference between Sense-Feelings and Emotions may be indicated thus :—

*Sense-Feelings
and Emotions
distinguished*

(1) Sense Feelings are presentative in character, being peripherally excited, while Emotions are representative in character, being centrally excited. Thus, the prick of a pin or the taste of sugar is presentative, while the experience of grief or anger is representative (involving a representation of loss or injury). (2) The nervous agitation set up by a sense-feeling is comparatively restricted in area, while the nervous excitement induced by an emotion is more wide spread or diffused—affecting even the heart, the lungs, and the viscera.

(1) Sense-
Feelings are
presenta-
tive, while
Emotions are
representa-
tive ;

[*Vide Chap XIV, § 5*] (3) Connected with the diffused nerve-currents in emotion, there is the organic disturbance or somatic resonance: anger or fear, for example, derives its characteristic feature partly from the physical effects accompanying it (such as clenching the fist, palpitation of the heart, etc.) A sense feeling, however, is devoid of this somatic resonance.

(2) the
nervous
agitation in
the one case
is restricted,
while in the
other,
diffused ;

(4) Sense feelings are suddenly produced and readily disappear with the disappearance of the stimulus; emotions, on the other hand, are gradual in their rise and decline. Some time must elapse before the full in-

(3) Sense-
Feelings are
not
conditioned
by organic
disturbance,
while
Emotions
are ;

(4) Sense-
Feelings
quickly
appear and
disappear,
while Emo-
tions are
rather slow in

their rise and decline ,

(5) the range of the one is limited, while that of the other, wide .

(6) Sense Feelings are produced by extra organic causes, which are definitely connected with them, while Emotions may have organic or extra organic causes, numerous in character

(7) Emotions are parasitical in character, while Sense-Feelings are not so

Characteristics of Sentiments
They are highly representative

tensity of an emotion can be felt , and some time is necessary in order that it may completely subside (5) The range of an emotion is very wide, while that of a sense feeling is limited The sting of an insect or the smell of violet is definite and restricted , but the range of anger or of fear is very great, varying from rudimentary irritation or apprehension to violent paroxysms (6) An emotion (e.g , fear or anger) may be produced by diverse causes, and it finds expression in much the same kind of behaviour irrespective of their difference , but sense-feelings generally vary with their causes, which also ordinarily call forth different re-actions Emotions may be excited either by extra-organic objects or by intra-organic disturbances (such as dyspepsia or drinking), while sense-feelings are ordinarily produced by extra-organic objects alone. (7) Emotions, when not roused by organic changes, have generally in their back-ground some ruling tendencies or propensities, which being fed or thwarted they are produced This is called by Prof. Stout the parasitical character of an emotion Thus, appetite or affection thwarted gives rise to anger or hatred, while when gratified gives rise to attachment or love. Sense-feelings, however, do not imply such tendencies or propensities.

The characteristics of the sentiments are —(1) They are highly representative, being the outcome of complex processes of combination and transference , (2).they are wanting in the energetic manifestation as well as in (3) the well-marked organic resonance, 'Sentiment,' as distinguished

from 'emotion,' thus indicates this quiet, contemplative character of the whole mental attitude. The sentiments being highly representative necessarily wait for the development of abstract thought. They consequently manifest themselves comparatively late in mental life. There are three principal classes of sentiments—(a) the intellectual, (b) the aesthetic, and (c) the moral.

It may be mentioned here that the term 'Sentiment' is often used in the sense of a prevailing interest as determined by a dominant system of ideas. In this sense Emotions are but passing expressions of the more stable dispositions to think, feel, and act in certain ways as determined by these Sentiments or Interests. They are thus organised emotional dispositions, due to habitual trains of ideational activity having reference to an object or class of objects and finding expression in different emotions according to variation of circumstances. Thus, a sentiment cannot be felt all at once. It is a general susceptibility to diverse kinds of emotions varying with circumstances. Friendship or love, for example, is a sentiment which is now manifested in the form of sorrow in parting, now in the form of joy in meeting, and now in the form of jealousy in excluding rivals. "Emotions," writes Mr. Shand, "are in a sense adjectival and qualify a more stable feeling. Whereas the specific organisation of our sentiments,—affection for our friends, the home-sentiment, and every sentiment that we can use the term 'love' to express, as love of knowledge, art,

The sentiments manifest themselves after the appearance of Thought.

'Sentiment' is used at times in the sense of a prevailing emotional disposition or tendency supported by a circle of ideas.

It is a general susceptibility manifesting itself in the form of different kinds of emotion according to circumstances or exciting causes.

goodness, love of comfort, and all our interest, as interest in our health, fortune and profession, interest in books, collections self-interest,—these so far from being mere adjectives and qualifying other feelings, are the relatively stable centres to which they first attach themselves, the substantives of these adjectives, the complex wholes which contain in their possible life-history the entire gamut of the emotions. In the love of an object ... there is pleasure in presence and desire in absence, hope or despondency in anticipation, fear in the expectation of its loss injury, or destruction, surprise or astonishment in its unexpected changes, anger when the course of our interest is opposed or frustrated, elation when we triumph over obstacles, satisfaction or disappointment in attaining our desire, regret in the loss, injury, or destruction of the object, joy in its restoration or improvement, and admiration for its superior quality or excellence. And this series of emotions occurs, now in one order, now in another, in every sentiment of love or interest, when the appropriate conditions are present' (*Third New Series*, No. 18, pp. 217—218.)

§ 2 Influence of Emotion on Thought.

We have already considered to what extent Thought influences Feeling (*Vide Chap XIV, § 9.*) Let us now consider the way in which Feeling influences Thought. Feelings or Emotions influence thought in either of two ways:—1) There is the negative or inhibitory effect upon thoughts when emotions are sufficiently strong or powerful. This is quite

consistent with the relation of opposition existing among the different faculties of the mind (*Vide* Chap V. § 2.) Thus, a witness under severe cross-examination may become irritated and so confounded (2) There is the positive or promotive effect, furthering thoughts, when emotions are comparatively mild. A gentle emotion favours the lively flow of ideas; but it is to be distinctly remembered in this connection that this positive or promotive effect always involves *bias*. According to the law of harmony, an emotion will favour the use of only those ideas which are in harmony with it thus in a joyous condition of mind, agreeable or hopeful ideas are suggested, in a state of grief, despondent or gloomy ideas are brought before the mind It is thus that we are blind to the defects of our friends or the merits of our foes

but (2) when
gentle tend to
foster it,
though in
directions
consistent
with their
character.

§ 3 Emotion, Mood, and Passion. Emotions, as indicated above, are the manifestations of feeling caused by representations They are thus relative to objects, which are their exciting causes But emotions also imply predisposing causes, which are the relatively fixed emotional dispositions or sentiments supported by systems of ideas. These emotional dispositions, which always operate as tendencies, may manifest themselves either in the form of comparatively durable emotional moods or in the form of mere passing emotions. Thus, love or hate as an emotional disposition may manifest itself in a mood of complacency or fretfulness which, according to

Emotions are
outbursts of
feeling
excited by
objects,

while Moods
are compara-
tively durable
conditions
induced by
organic or
mental
disturbances

Emotional moods easily extend their influence to surrounding objects

circumstances, finds expression in joy or grief, tenderness or anger. The peculiarity of an emotional mood is that, when once excited and so long as it lasts, it tends to spread itself to adjacent objects though not connected in any way with its exciting cause. Thus, ill temper or gloomy depression, when roused, would fasten itself upon anything which comes before the mind at the time. One in such a mood may break furniture and strike persons other than the offender or shun things and avoid company that may even be objects of love and solace.

Emotional Dispositions are rather stable feeling-attitudes or tendencies supported by systems of ideas

From the above account it is clear that an emotional mood is not the same as an emotional disposition. "The mood," writes Prof. Stout, "is an actual affection of consciousness, but the disposition persists when neither the mood nor the emotion itself is being felt. Such words as liking and disliking, hate and love, indicate emotional dispositions rather than actual emotions. We say that the cat dislikes the child, meaning, not that it is actually feeling angry with the child at the moment, but that it has a permanent tendency to feel the emotion of anger whenever it sees the child in its neighbourhood. On the higher levels of mental life, where ideas and concepts play a prominent part, emotional dispositions are very complex, and are called *Sentiments* or *Interests*." (*Manual of Psychology*, p 312)

The more intensified and deep-rooted emotional dispositions which, so to speak, get the mastery of our mental life, are known as Passions. Hence,

anger, hate, sex, and even love in an all-absorbing form have been specially marked out as passions, and the etymology of the word (from Lat. *passus*, to suffer) also indicates that in the case of passion the mind is rather dominated by it. "Passion (sentiment, disposition)," writes Hoffding, "is the movement of feeling become second nature, deeply rooted by custom... .Feeling begins as emotion, and passes—if it finds sufficient food—into passion. Anger and sorrow are emotions, revengefulness and melancholy are passions. The deepest and most central current in human nature is the ruling passion, first determined and set going by the inherited disposition and nourished, developed, and refined by all stir of feeling and by experiences—Repetition has a different effect upon emotion and upon passion, it weakens the one and feeds the other. This is connected with the fact that passion is of a more active nature, and more closely linked with definite and distinct ideas than is emotion" (*Outlines of Psychology*, pp 282 283.)

A finer distinction is also drawn between Passion and Sentiment, the former being more violent, gross, and marked by physical disturbance, while the latter being more quiet, refined, and reflective in character. The intensity of a passion may be due either to subjective weakness or to objective conditions—such as the strength or suddenness of provocation. And the intensity of an emotion is ordinarily proportionate to the vehemence of the passion at any time. "Emotion," says Kant, 'takes effect as a flood which bursts its dam,

Passions are intensified and deep-rooted emotional dispositions

Passions are more violent, gross, and influenced by organic conditions than Sentiments or Interests, which are rather quiet, refined, and reflective.

passion as a stream which wears for itself an ever-deepening channel. emotion is like a fit of intoxication, which is slept off, passion as a madness, brooding over one idea which sinks in ever deeper."

§ 4 Classification of Emotions We have already indicated the difficulty of classifying the Feelings owing to their development. This difficulty is heightened in the case of the Emotions owing to their representative basis, which renders them liable to variation with a variation in the duration of representation. Moreover, the Emotions are more or less complex and are affected in many cases by organic disturbance or somatic resonance. Temperament, inherited tendencies, habits, and experiences influence to a greater extent emotions as subjective phenomena than the other processes of the mind. Hence a classification of Emotions by reference to a single principle—such as quality, intensity, purity, or simplicity—can scarcely be adequate and satisfactory. Fear and anger, for example, may resemble in certain respects and differ in others. Hence in arranging the Emotions we should adopt a mixed principle of classification partly by reference to their degrees of representativeness, partly by reference to the order of their appearance, and partly by reference to their somatic resonance and exciting causes. Let us now briefly consider the different classes of Emotions as indicated in the table in § 7 of the last chapter.

§ 5 Common Unspecialised Emotions These are closely related to the Sense feelings and are governed mainly by the general laws of pleasure

The difficulty, of classifying the Emotions is due to their representative and complex character.

Hence a mixed principle of classification is adopted.

y are
yected

and pain—specially the laws of change, harmony and conflict. They are characterized by the common agreeable or disagreeable feature. Joy and sorrow, happiness and misery may be cited as prominent examples.

Joy and sorrow are contrary emotions like Hope and Despair. Joy is an agreeable emotion arising from the consciousness of gain or advantage of any kind either to oneself or to another, while Sorrow or Grief is a painful emotion due to a similar consciousness of loss or misfortune. Joy is invigorating, while grief is depressing. The one manifests itself in such elastic movements as jumping, dancing, laughing, and clapping, while the other, in heavy sighs and moanings as well as in cries and complaints: if the expression of joy is active and flushed, that of sorrow is passive and sunken. Both joy and sorrow fasten on the objects causing them, and the latter specially favours contemplation. Sorrow dwelt on gives rise to the mood or disposition of Melancholy, which is described by Milton as "pensive Nun demure".

§ 6 Specialised Instinctive Emotions
 In the promptitude of reaction and the transience of the representative factor, these emotions resemble very much complex sense feelings, but the characteristic somatic resonance serves as a distinguishing feature. These emotions may be subdivided into three main groups —(I) *Egoistic* (*e.g.*, fear and anger) aiming at self-preservation (II) *Ego-altruistic* (*e.g.*, love of praise or approbation), being connected with self-feeling or the pleasurable con-

with the
sense-feelings
and are
marked by an
agreeable or
disagreeable
feature

Joy is an
agreeable
while Grief
or Sorrow is
a disagreeable
emotion
arising from
a conscious
ness of gain
and loss
respectively.

The one is
invigorating,
while the
other is
depressing.

Both fasten
on their
objects

They are
marked by
promptitude
of re action
and transience
of representa-
tion

Three Forms
(I) Egoistic,
(II) Ego-
altruistic,

and (III)
Altruistic

temptation of one's own self. These are egoistic as they refer to the interest of the self, and altruistic, as they depend upon the opinions of others, which are generally highly valued (III) *Altruistic* or *Social* (*e.g.*, instinctive craving for companionship, contagion of feeling, imitative sympathy), being directed to others as distinguished from self. These social emotions are primarily instinctive or original in character, though they are deepened and enriched by personal experience. Thus, the love of the child for its mother is primarily due to instinctive or original affection which is deepened by experiences of nutrition, warmth, support, *etc.*, derived from her.

§ 7. (I) The Egoistic Emotions The emotions of Hope and Fear, Anger and Hate are primarily directed to the good of oneself and so to ward off possible injury or loss. They are thus essentially egoistic in character. Let us consider them separately.

Hope and
Fear, Anger
and Hate are
egoistic
emotions.

Hope is due
to the
expectation
of coming
good, while
Fear, to the
apprehension
of an
impending
evil

Various
es of
- and

Hope and Fear The emotion of Hope depends on the confidence with which we expect a coming good, while Fear depends on the apprehension of an impending evil. If there is strong assurance of a coming evil, then Fear gives way to Despair. "The moods of hope and fear," writes Höffding, "appear in innumerable gradations and shades, according to the relation of the possibilities to one another. The greater the possibility of attaining the end, the closer will hope come to *certain expectation*, where the mind rests in the idea of the happy future without further disquiet than is

inseparable from the consciousness that the present must give way to a future,—the smaller the possibility, the more nearly will fear approximate to *despair or resignation*" (*Outlines of Psychology*, p 237)

Fear is evidently a primary emotion found very early in life and in all grades of mental development. It is caused either (1) by the revival of past painful experiences in connection with the objects which caused them or (2) by the suddenness, intensity, or strangeness of an impression. Spencer is inclined to take the former as the exclusive source of fear. "Every one," he says, "can testify that the psychical state called fear consists of mental representations of painful results." (*Principles of Psychology*, I, p 483) While undoubtedly it is true that this is one of the chief sources of fear (of the proverb 'The burnt child dreads the fire'), it can scarcely be denied that fears are not infrequently caused by strange or obtrusive phenomena. A loud report or crash of thunder, a strange animal or phenomenon often occasions fear, suggesting evidently some untoward experience. Thus, the sight of the ghost 'harrowed' Horatio with 'fear and wonder,' and a total solar eclipse so terrified the Median and Lydian armies engaged in battle that they fled in confusion. Prof. Brooks mentions that his dog was thrown into a sort of epileptic fit on seeing a piece of bone moving on the floor, when drawn by an invisible thread. The bodily symptoms of fear are generally palpitation of the heart, paached mouth, husky voice, pallor of

Fear is excited (1) by an object suggesting painful experience or (2) by the strangeness of an impression

Bodily symptom of Fear.

expression, trembling, a cold sweat, and even fainting. Dryden writes—

“ I feel my sinews slacken'd with the fright,
And a cold sweat thrills down all o'er my limbs,
As if I were dissolving into water ”

In moderate fear there is the tendency to crouch down or to flee, the eyes, with dilated pupils, being sometimes fixed on the object of fear. Fear generally has a depressing effect on our mind and body and is found to be a pre-disposing cause of many diseases.

Anger when thwarted occasions Hate

Anger is another egoistic emotion which, when thwarted in its effort to retaliate, often gives rise to Hate. Anger is also a painful emotion marked by the tendency to break down opposition. Antipathy, Anger, and Fear have reference to the present, the past, and the future respectively. “ Towards an object of natural aversion immediately before us ”, writes Martineau, “ we feel *Antipathy*, towards that which has just hurt us, we experience *Anger*, towards that which menaces us with evil, we look with *Fear* ” (*Types*, II, p 141.) Anger is a primitive emotion characterized by an attitude of opposition and aggression. In its blind or unenlightened form it often manifests itself in an impulse to break, crush, tear, rend, and destroy anything that happens to be near. With the development of intelligence this destructive impulse becomes specially directed against the offending object and may even assume the quieter form of an ideal satisfaction at the thought that the opposing forces have been crushed by our agency. When

Anger is a primitive emotion leading to opposition or aggression.

anger is deliberately employed to return ill for ill, it is known as *Revenge*, which often assumes the form of a settled disposition. *Hate* is a more intellectual form of anger due to the consciousness of something offensive and our inability to remove it. Bain observes, "The affection grounded on anger is called Hatred. The sense of some one wrong never satisfied, a supposed harmful disposition on the part of another, an obstructive position maintained,—keep up the resentful flame, till it has become an affection, or a habit. Sometimes a mere aversion or dislike is cherished into hatred" (*Mental Science*, p 265) The bodily symptoms of anger are generally a flushed appearance and hasty action. It is thus not without some truth that Aristotle likens anger to a hasty servant carrying a message. In intense forms anger may agitate the whole frame, leading one to roll his eyes and foam and gnash and bite.

The bodily
symptoms of
Anger

"With fiery eyes, and with contracted brows,
He coin'd his face in the severest stamp,
And fury shook his fabric like an earthquake,
He heaved for vent, and burst like bellowing Etna,
In sounds scarce human". (*Dryden*)

§ 8 (II) Ego-Altruistic Emotions The emotions so named by Spence include the various forms of the love of Praise or Approbation. "By this name I mean," he says, "sentiments which, while implying self-gratification, also imply gratification in others." (*Principles of Psychology*, II, p. 661) These emotions "find satisfaction in the

Love of Praise
or Fear of
Blame is
partly
egoistic and
partly
altruistic.

admiration given by others' (*Principles of Sociology*, I, p. 64) These emotions are egoistic in as much as they contribute to self-preservation and self-satisfaction by securing the sympathy and co-operation of others, whose approbation and disapprobation are evidently the "signs of their friendship and enmity." They are also altruistic, since they lead us to attach value to the opinions and feelings of others and thus enable us to promote social unity and solidarity

Altruistic emotions are directed to the good of others and include the different forms of natural affection and sympathy, known as Love

Love is an emotional disposition seeking the welfare of the beloved object without any self-regarding consideration

Love is said to be selfish there is element of self-regarding
y's view

§ 9 (III) Altruistic Emotions The altruistic or social emotions include all the other regarding emotions and dispositions known as love and sympathy. These are directed to the good of others and find satisfaction in their welfare. These include the various forms of natural affection, sympathy, and attachment which are often vaguely included in the generic term Love.

Love, properly speaking, is a sentiment (in the technical sense) or emotional disposition manifesting itself in particular emotions and actions. It is illustrated when we are disposed to seek the welfare of the beloved object irrespective of any consideration of personal pleasure. Thus, sympathy is an essential factor in it, though it not infrequently includes other factors which are rather egoistic in character—such as the desire of the company of the beloved object. An element of such a desire renders love rather 'selfish,' which may even go to the extent of seeking its own satisfaction unmindful of the welfare of the beloved object. Thus, according to Sully, "the social

feelings, love of society, of co-operation, personal attachment, and so forth, spring from two roots. (a) In the first place, there is the liking for others, growing out of the pleasure or satisfaction which the presence or companionship of others brings, or the bare feeling of Attachment, an emotion that has in its more concentrated forms the characteristic reaction of fondness or caressing (b) In the second place, there is the feeling of Sympathy, or the sharing or entering into the feelings of others. The former ingredient has an egoistic basis .. The second ingredient is the pure altruistic element in the social feeling." (*The Human Mind*, II, pp. 103—104) It may, however, be mentioned in this connection that the instinctive feeling of attachment or craving for companionship (such as is found in the attachment of the child to its mother) can scarcely be said to be egoistic in the proper sense of the term. It may have a self-regarding significance, but it is not strictly egoistic.

Two prominent features of love attract our notice. (1) It is properly a personal emotion, directed towards human beings, and (2) it is generally exclusive in character, interest being felt in a particular individual—no other persons being able to satisfy it. With these qualifications love may vary with a variation in the relations. Thus, there are (a) the 'natural affections,' due to blood-relationship, (b) friendship or 'brotherly love' governing other relations between members of the same sex, and (c) 'romantic love' between persons of opposite sexes. In all these forms, love implies

Love is (1) a personal emotion, (2) exclusive in character

Forms of Love
(a) the natural affections,
(b) friendship and
(c) romantic love.

pleasure in the presence or thought of the beloved person or any communion with him and pain in his absence or estrangement or any injury to him

By transfer of epithet Love has come to mean any sort of attachment.

Though love primarily implies a sympathetic regard towards persons, yet secondarily it has come to signify any sort of attachment, whether towards persons or not. Thus, we talk of love of home, love of books, love of music, love of truth, or love of beauty; and men are said to love not merely individuals but also nations and classes. This extension of the term from personal to non personal objects takes place by the analogy of feeling or similarity of emotional effect, much in the same way as when we talk of sweet smell, sweet music, or sweet words.

Hate is usually taken to be the opposite of love, but, as a settled aversion, accruing from baffled indignation and having a tendency to damage or destroy, hate is rather related to anger than to love. Love and hate as opposites are often used in very wide senses to indicate the genetic affections of the mind from which diverse emotions and tendencies arise according to temperament and circumstances.

Hate, though usually taken to be the opposite of Love, is rather related to Anger

Love and Hate are often used in very wide senses to cover the genetic affections from which different emotions and tendencies

are

"Love various minds does variously inspire.
He stirs in gentle natures gentle fire,
Like that of incense on the altar laid,
But raging flames tempestuous souls invade,—
A fire, which every windy passion blows,
With pride it mounts, and with revenge it glows"

(Dryden)

§ 10 Representative Emotions These emotions are more representative in character and are manifested in the different forms of the sympathetic disposition known as Sympathy, Compassion, Benevolence, Altruism. Sympathy, as we have said, is really instinctive in character, though it is capable of considerable development by means of experience. It is, accordingly, found in two principal forms —

(1) The rudimentary form is illustrated in what is known as 'contagion of feeling' or 'imitative sympathy.' Owing to the similarity of mental constitution, we are generally affected by the feelings of others. Hence we are inclined to weep while others weep, and laugh while they laugh. It is often manifested in the form of a 'panic' in a crowd or an army or the contagion of fear in a flock or a herd. It is likewise illustrated in hilarity or mirth, which is also 'catching'. This form of imitative sympathy indicates how one may instinctively imitate the emotional manifestations in others with but a vague consciousness of the connected feeling. Identity of mental constitution leads a member of a species to feel in much the same way with the other members through the natural expression of an emotion, the feeling is shared in a rudimentary and imperfect form without any mental representation of the emotion as operating in others. Even the consciousness of self as distinct from others is hardly present in such a case. One feels as a member of a species without any imaginative realization of the experiences of others.

The Representative Emotions are illustrated in Sympathy and the different forms of Altruism.

Sympathy, though instinctive in origin, is capable of considerable development through experience.

(1) The instinctive form is illustrated in 'contagion of feeling'.

while (2) the developed form, involving more or less representative elements, is illustrated in conscious sympathy, which is at times called an 'ideal emotion'

Sympathy as a representative emotion presupposes revival of past experience and often constructive imagination as well.

Sympathy implies feeling for and with another in his weal or woe

(2) As distinguished from this rudimentary form there is the more developed and conscious form known as sympathy proper. It implies a more or less distinct representation of the feelings of others and is capable of immense development. As it is based on representation, it has sometimes been called an 'ideal emotion'. Its importance requires a separate treatment of it in a distinct section.

§ 11 Character and Conditions of Sympathy
 Sympathy, as mentioned above, is partly an instinctive emotion and partly a representative or ideal emotion. The former is illustrated in the primitive attachment of a child to its mother, and the latter in the sympathy which one feels for others in their weal or woe. The latter, evidently, presupposes personal experience, its recollection, and constructive imagination also in many cases, but it can scarcely be denied that even this form of sympathy involves also an original factor. It is but Nature's milk put in the human breast to sustain the afflicted. No doubt, experience enables one better to realize the sufferings of others, but experience alone can never be regarded as the sole originating condition of sympathy.

Sympathy (Gr *syn*, with, and *pathos*, feeling) implies feeling for and with another, it includes not merely our feeling for others in distress but also our feeling for those who are happy. It implies that we are glad when others are happy and we are sorry when others are miserable. When

analysed sympathy betrays the following factors :—
 (1) previous personal experience of pleasure and pain ; (2) recollection of such prior experience ; (3) good constructive imagination to meet new cases , and (4) somatic resonance necessarily following the realization of others' experiences. A few words of explanation may be added with regard to each of these factors . (1) Without the prior experience of pleasure and pain we shall scarcely have a definite unit in us to judge the experiences of others. (2) If, however, we do not recollect our past experiences, then also we shall not be in a position to enter into the feelings of others According to Bain, the intensity of prudence as well as of sympathy depends, to a great extent, on this recollection (3) Often are we required to sympathize with persons placed under new circumstances , and, if the power of constructive imagination be deficient in us, we shall not be able to understand their experiences and so to sympathize with them Sympathy is, therefore, illustrated in a comparatively crude and partial form in savages and the uneducated , culture, wide experience, and emotional susceptibility usually enable one to sympathize with others. (4) The physical embodiment or the somatic resonance of an emotion accompanies and colours it. When an emotion is excited by a representation instead of by a presentation, it is called an *ideal emotion*. Sympathy is, accordingly, called an ideal emotion, in as much as it is not excited by the actual happiness or misery of the sympathizer , it is called forth by a representation

It involves

(1) previous personal experience,
 (2) its revival,

(3) constructive imagination, and

(4) somatic resonance.

An ideal emotion.

of the happiness or misery of another. In an ideal emotion the physical effect or the somatic resonance is induced very much in the same way as in an emotion produced by a presentation. The explanation of this fact is to be found in the identity of the nerve process in presentation as well as in representation. (*Vide* Chap X, § 4) When, therefore, a person sympathizes with another, the bodily accompaniment or somatic resonance is induced by the representation of another's happiness or misery, and if the representation be very vivid, simulating reality, the somatic resonance also will be equally intense. Hence, the well-known fact that sympathetic emotion often rises to the full intensity and vividness of the corresponding personal feeling. The physical embodiment or the somatic resonance in such a case colours sympathy and gives it a realistic character such as we find in the performance of a good actor in a play. When sympathy is accompanied by the consciousness that, for some quality or possession of one's own, the untoward condition could not be true of oneself, then there is room for *Pity* which, with a touch of mercy or forgiveness, assumes the form of *Compassion*. Thus, the pity felt for a poor man may change into compassion when his miserable condition is seen to be due to his own fault. Sympathy, as an emotion, is usually connected with an active impulse to help the person in distress. This practical aspect of sympathy is known as *Benevolence*, *Disinterestedness*, *Altruism*. Sympathy may have either (a) a special direction de-

Meanings of
Pity,

Compassion,

...vulence.

terminated by interest, experience, and association, or (*b*) a general expression, as in the philanthropy of a Howard or a Vidyasagar. In the latter and wider form of sympathy, namely, the feeling for humanity, it approaches the abstract sentiments.

§ 12 Intellectual Sentiment. Having considered the representative emotions, let us now turn our attention to the re-representative ones, *viz.*, the Sentiments. We shall in this section confine our attention to the Intellectual Sentiment and shall examine the other sentiments in the following sections.

The intellectual sentiment is an accompaniment of our intellectual exercise. The intellectual sentiment involves an element of pain as well as an element of pleasure. The failure to understand something produces perplexity, thus giving rise to pain. The solution of the difficulty gives rise to a consciousness of greater power and leads to pleasure. In the higher forms of the intellectual sentiment, the element of pain may become comparatively less. In harmony with the general law governing the relation of the mental faculties (*Vide Chap. V, §2*), the intellectual sentiment also, when becoming very intense, may interfere with the exercise of intellect itself. Thus, when Newton found in the course of his calculation that his hypothesis of Gravitation was about to be verified, he was so very overjoyed and agitated that he could not complete the calculation himself but requested a friend of his to do it.

The intellectual sentiment is illustrated in three

Wide sympathy,
Known as
philanthropy,
approaches
the abstract
sentiments.

Sentiments
are re repre-
sentative
emotions.

The
intellectual
sentiment,
accompanying
an exercise of
intelligence,
involves
elements of
pleasure and
pain.

In its higher
form the
element of
pain is
comparatively
less.

Its three
forms

- (1) Wonder, which is the simplest and instinctive form,
 (2) Surprise, which is the developed form presupposing experience,

prominent forms —(1) The simplest and earliest form is illustrated in what is known as *Wonder*, which is but the primitive curiosity to know and understand things. (2, The more developed form is illustrated in *Surprise*, which implies the experience of something novel or unexpected Experience begets association and expectation, any breach of which gives rise to surprise An intensified form of surprise is known as *Astonishment* Wonder is the intellectual sentiment that leads us to enquire into the causes of phenomena and thus to understand them, while surprise throws the mind out of its balance at an unusual event and requires a reconciliation ‘That *Wonder*,’ says Dr. Martineau, “is the primitive intellectual impulse, whence all philosophy springs, is a maxim held in common by Plato and Aristotle , drily stated by the latter , embodied by the former in the graceful saying, that ‘it is a happy genealogy which makes Iris the daughter of *Thoumas*’, i.e , which treats the messenger of the gods, the winged thought that passes to and fro between heaven and earth and brings them into communion, as the child of Wonder For ‘this,’ he says, ‘is the special sentiment of the philosopher, nor has his pursuit any other source’ In order to vindicate for it this originality of position, we must carefully distinguish it from *surprise*, an emotion with which it is very apt to be confounded. Nothing excites *surprise* except what is contrary to a prior expectation, and breaks in upon an ideal order already established in the mind as when we meet in Hyde

Park a friend whom we supposed to be in Calcutta, or see a conjuror apparently produce entire the handkerchief he had just torn to shreds."* [Types, II, p 152] (3) The highest form of the intellectual sentiment is illustrated in the pursuit of truth and love of knowledge. The feelings connected with consistency or inconsistency and the exercise of the different intellectual functions or faculties illustrate but the different varieties of the sentiment. Confusion, inconsistency or contradiction gives rise to pain, while assimilation, congruity or harmony gives rise to pleasure.

The intellectual sentiment, when not involving perplexity or distraction, is generally of an agreeable character. The mere exercise of intelligence as a faculty yields pleasure, if not carried to excess, and the discovery of the relations of similarity and difference is, indeed, an agreeable exercise of mind. When, however, we fail to discover a relation or we find inconsistency or contradiction among facts, we are perplexed, which is a distinctly painful experience. A consciousness of harmony and consistency, on the other hand, favours assimilation and contributes to pleasure. The logical feeling of consistency or inconsistency as the most

and (3) the Love of Truth or Knowledge, which is most abstract in character.

Exercise of intelligence, when not involving perplexity or distraction, is ordinarily agreeable

The logical sentiment appears only

* This distinction of Dr Martineau is reversed by Prof Sully. Surprise is taken by him as "one of the first emotions which are distinctly manifested by the child." And he observes, "If, instead of being merely unexpected at the moment, the object is strange and unfamiliar, the feeling of surprise passes into the more prolonged state of wonder or astonishment" (*The Human Mind*, II, p 126) Dr Martineau, however, remarks—"I do not perceive that wonder thus presupposes surprise. Surely, it is the effect upon us simply of the new and unexpected,—i.e., of every phenomenon for which no way of custom has yet been paved,—but which enters upon the un-trodden grass of a fresh nature." (Types, II, p. 153)

after the development of thought.

The Aesthetic Sentiment is a source of pure pleasure.

In a wide sense it includes the sentiments of the Beautiful, the Sublime, and the Ludicrous,

developed form of the intellectual sentiment, appears only after the development of thought and multiplication of experience.

§ 13. Aesthetic Sentiment The Aesthetic Sentiment is marked out from the intellectual by its being free from any painful element. Of course, the experiences of the ugly and the tragic, which are also ordinarily included in the aesthetic sentiment, are usually intense painful feelings, but these are rather the negative correlatives of the normal and positive experiences of the beautiful and the comic. In fact, instances of the ugly and the tragic may be viewed as but instances of the beautiful and the comic frustrated. The Aesthetic Sentiment in its widest sense includes the feelings of the Beautiful, the Sublime, the Comic, the Tragic, the Pathetic, and the Ugly or the Deformed. The term 'aesthetic' comes from Gr. *aisthetikos*, implying 'perceptive by the senses or by feeling.' Thus, the aesthetic sentiment has come to stand for all those experiences which may be attributed to the predominant influence of the feelings, such as we find exemplified in the estimate of (I) the Beautiful, (II) the Sublime, and (III) the Comic. We shall, accordingly, examine in this section these three forms of the aesthetic sentiment one by one.

(I) **Sentiment of the Beautiful** The term 'aesthetic sense' in a limited sense refers specially to the Sentiment of Beauty which is its prominent form. The characteristics of the sentiment of beauty are —(1) It is purely pleasurable in character. There is no element of pain in it. It is an end in

while in a narrow sense it stands for the sentiment the ful e ness of the

itself and not a means to an end : it is, as Spencer is disposed to hold, an accompaniment of redundant or play-like activity, not subserving an end of life. It is thus quite distinct from the useful and is a source of pure enjoyment always "A thing of beauty is a joy for ever." (*Keats.*) (2) Being wholly the outcome of an attitude of contemplation, it is comparatively quiet. Within certain physical limits it may be prolonged for a long time, without inducing pain or fatigue. (3) It is characterized by disinterestedness, there being no reference to self or its interests As Kant points out, there should be no egoistic reference in the purely æsthetic sentiment— not even the desire to have the beautiful object (4) It is consequently characterized by shareability or range of participation. A beautiful object naturally excites the disposition that others also may observe it and derive pleasure from it.

Æsthetic Sentiment
It is
(1) wholly,
pleasurable,

(2) quiet,

(3) disinterested, and

(4) shareable

"Beauty is Nature's coin, must not be hoarded,
But must be current, and the good thereof
Consists in mutual and partaken bliss,
Unsavoury 'in th' enjoyment of itself'" (*Milton*)

By this mark the æsthetic sentiment may be easily distinguished from the sense-feelings and the egoistic emotions which are exclusive in character. It also brings out the fact that the sense-organs which contribute to æsthetic feeling are the higher senses of sight and hearing.

The last characteristic of the æsthetic sentiment reveals that its sphere may easily be extended

Sight and
hearing are
the organs of
the æsthetic
feeling.
The æsthetic
sentiment is
extended

through ideal
representa-
tion

through sympathy. And this principle is largely employed in the Fine Arts to produce an aesthetic effect. Thus, there are many kinds of experience which in themselves do not belong to Art, but which may be brought within its province when represented in idea and viewed with sympathy. "A painter or a poet," writes Bain, "may depict a feast, and the picture may be viewed with pleasure. The disqualifying circumstances are not present in ideal delights. So Wealth, Power, Dignity, Affection, as seen or imagined in others, are not exclusive. In point of fact, mankind derive much real pleasure from sympathizing with these objects. They constitute much of the interest of surrounding life, and of the historical past, and they are freely adopted into the compositions of the artist" (*Mental Science*, p. 291). It may be mentioned here that the common forms of enjoyment involved in the aesthetic sentiment and encouraged by Art contribute materially to the growth of sociality.

Factors of the Aesthetic Sentiment

The Constituent Factors of the Aesthetic Sentiment. The aesthetic sentiment is generally the outcome of a complex group of factors—material, formal, and associative—which conspire to produce the effect. It is extremely doubtful whether a single colour or note without any variety would ever give rise to the aesthetic sentiment. "The source of Beauty," as Bain observes, "is not to be sought in any single quality, but in a Circle of Effects" (*Ibid.*, p. 292). The factors which contribute to the aesthetic sentiment are—(1) *The material factor*: certain materials in the shape of

qualities or sense-impressions enter into the estimate of beauty. Bright colour or sweet tone, by itself, is a source of æsthetic enjoyment. (2) *The formal factor*. materials alone, however, do not constitute beauty, these must be arranged in a harmonious way. In order to constitute beauty, there must be a variety of factors and also harmony or unity in their arrangement. Unity in the midst of variety is the essence of harmony. A figure, for example, is judged as beautiful when there are diverse parts which are harmoniously arranged. If, for instance, the face be out of proportion or the legs or hands be too large or too small, the conditions of harmony will be absent, and so the figure will be judged as ugly. This second or formal factor is considered by some to be the essence of beauty. (3) *The associative factor*. beauty is sometimes suggested by association. Alison, for example, resolves beauty wholly into association. The cawing of the rook, for instance, is regarded as beautiful because it is associated with sunshine, beautiful landscape, etc., ; and the call of the cuckoo similarly suggests all that is meant by spring-time.

" I heard the sparrow's note from heaven,
 Singing at dawn from the alder bough ,
 I brought him home, in his nest, at even ;
 He sings the song, but it pleases not now,
 For I brought not home the river and sky,—
 He sang to my ear,—they sang to my eye."

(2) formal,
and

(3) associative

(Emerson.)

Association often accounts for variation in æsthetic estimate.

It is a well known fact that the sentiment of beauty is ordinarily taken to be highly variable. This is evidently due, to a great extent, to our highly variable notions of artificial beauty—such as the pinched feet, the slender waist, or the tall stature. It is explicable evidently by reference to custom and association. Thus, the poet writes—

“Beauty, thou wild fantastic ape,
Who dost in every country change thy shape,
Here black, there brown, here tawny, and there
white,
Thou flatterer who comply'st with every sight.”

(Cowley.)

II Sentiment of the Sublime In a wide sense, the æsthetic sentiment includes, as we have said, the sentiment of sublimity, though Burke contrasted it with beauty as caused by “a mode of terror or pain.” The characteristics of this sentiment are those mentioned above, with only this difference that usually an element of pain enters into it. The conception of the sublime is formed, as Bain points out, by reference to something vast or great—in power, extent, or time. We contemplate with awe, for example, the fall of the Niagra, as revealing great might, or the past ages, as indicating vast time, or the expanse of the sky as indicating immense space. Thus, Kant distinguishes between the dynamical sublime (or what is vast in energy) and the mathematical sublime (or what is vast in space or time). It is to be noted that, in its earlier stages at least, the sentiment of the

An element of pain usually enters into the Sentiment of the Sublime

It is excited by what is vast or great

sublime is not wholly or purely an agreeable feeling. (a) There is a painful factor, in as much as we fail to grasp or comprehend what is vast or great. (b) There is, however, an agreeable factor in the contemplation of what is exalted and above the common run of experience ; and when we apprehend, to a certain extent, the character of the sublime object, it becomes an additional source of enjoyment—attending assimilation, successful intellectual exercise. The sentiment of the sublime, then, may generally be described as a mixed emotion, having at the outset a painful factor due to contrast or surprise and finally an agreeable experience “*The feeling of the sublime in its simplest forms,*” observes Hoffding, “is related partly to wonder, partly to fear. A thing is sublime, which affords such a wealth of impressions that the ordinary mean of intuition is far over-passed, without the object intuited ceasing to act upon us with gathered force We attempt to compass it with our intuitive faculties, but cannot succeed or only with difficultyThe pain which is associated with the feeling of the sublime in its primitive forms, disappears on higher development, partly because the intellectual elements of the feeling become richer and nobler, partly because the object of feeling is embraced with sympathy. As already exhibited, there is in reverence an element of sympathy which distinguishes it from fear It is therefore scarcely true, as some psychologists hold, that an element of pain is necessarily involved in the feeling of the sublime.” (*Psychology*, pp 288-290.)

Elements of
(a) pain and

(b) pleasure
in it.

It is
therefore,
usually a
mixed
emotion.

In its higher
form there
is scarcely an
element of
pain.

The Sentiment of the Ludicrous is the reverse of that of the sublime.

Hobbes' view.

Prof. Bergson's view.

(III) Sentiment of the Ludicrous. This sentiment, which also is included in the æsthetic feeling in its wide sense, is in striking contrast with that of the sublime. In place of wonder and awe there is joyous elation, and, in place of the consciousness of our littleness or insignificance, there is a consciousness of our greatness or power. "Laughter," says Hobbes, "is a sudden glory arising from sudden conception of some eminency in ourselves, by comparison with the infirmity of others, or with our own formerly" Even when we laugh at a logical contradiction, a feeling of superiority in respect of intellectual power is present in our mind.

Prof. Bergson mentions three characteristics of the comic or ludicrous, *viz.*, (1) that it is strictly human, (2) that it presupposes a neutral mental condition, and (3) that it is eminently social. "A landscape," he writes, "may be beautiful, charming and sublime, or insignificant and ugly, it will never be laughable. You may laugh at an animal, but only because you have detected in it some human attitude or expression. You may laugh at a hat, but what you are making fun of, in this case, is not the piece of felt or straw, but the shape that men have given it,—the human caprice whose mould it has assumed" (*Laughter*, Eng. trans., by Brereton and Rothwell, p. 3) Similarly, if a person moves us with pity or indignation, we cannot laugh at him until the emotion is banished from our mind "To produce the whole of its effect," he writes, "the comic demands something like a momentary anesthesia of the heart. Its

appeal is to intelligence, pure and simple." (*Ibid.*, p 5) And, likewise, laughter always supposes other laughers, actual or possible. "However spontaneous it seems," he observes, "laughter always implies a kind of secret free-masonry, or even complicity, with other laughers real or imaginary" (*Ibid.*, p 6) Laughter, according to Bergson, is "a sort of social gesture" having "a social significance," *viz.*, the correction of "rigidity" or 'mechanical inelasticity" and so to induce flexibility and adaptability. A Diogenes, for example, who uses a lantern both by day and night reveals a rigidity or want of modifiability in conduct which evokes our laughter 'The rigidity,' says Bergson, "is the comic, and laughter is its corrective." (*Ibid.*, p. 21) Repetition (e.g., when a man behaves in the same way irrespective of the differences in circumstances), inversion (e.g., a child teaching its parents or a prisoner instructing a magistrate), and reciprocal interference of series (such as is illustrated in Shakespeare's *Comedy of Errors*, in which what is true of one is transferred to another ignoring differences) are the ways in which, according to Prof. Bergson, rigidity is usually manifested in the comic.

The account of the comic given by Prof. Bergson is undoubtedly very interesting and instructive. But his view that the comic is based on pure intelligence and that it is not merely aesthetic but utilitarian also, aiming at general improvement, is scarcely tenable. Though the intellectual apprehension of rigidity or contrast is

Prof
Bergson's
view is true
with certain
qualifications.

essential to the ludicrous, yet concomitant feeling is also necessary to produce the comic effect. Rigidity, contrast, or opposition by itself is unavailing in this respect. "That the element of feeling," observes Höffding, "is the essential thing in these phenomena is evident from the fact that they scarcely stand repetition and custom. While cognition (insight into logical contradictions) is practised and strengthened by repetition, feeling becomes deadened. The ridiculous does not bear too frequent repetition" (*Psychology*, p. 297.) Neither can it be maintained that laughter has always "a utilitarian aim of general improvement." When, for example, we laugh at a man who takes the Greater and the Lesser Dog to be the mastiff, and the terrier there is scarcely any reference to utility.

Views of Aristotle,

Since the time of Aristotle the essence of the Ludicrous is taken to be the feeling of contrast. By Aristotle deformity or meanness, not exciting pity, is viewed as essential, by Hobbes, a sudden feeling of superior power, by Kant, a sudden collapse of an intense expectation; by Spencer, incongruity not exciting any other powerful feeling; and by Bergson, rigidity or mechanical inelasticity. All these indicate that contrast, opposition, or incongruity lies at the root of the comic, provided no other strong feeling, such as compassion or indignation, is roused at the time. According to Bain, all contrasts or incongruities are not ludicrous, but only those that are associated with degradation. "The occasion of the Ludicrous," he

Hobbes, Kant, Spencer, and Bergson indicate that contrast lies at the root of the Ludicrous, if no other strong emotion is produced at the time Bain's view]

writes, "is the Degradation of some person or interest possessing dignity, in circumstances that excite no other strong emotion. When any one suddenly tumbles into the mud, the spectator is disposed to laugh, unless the misery of the situation causes pity instead" (*Mental Science*, p 315.) But it may be said, we laugh none the less when an idiot or a fool undertakes to decide an intricate point of law

§ 14 Moral Sentiment. The moral sentiments are the feelings connected with the moral nature ; they are the characteristic emotive experiences due to the apprehension of moral quality, which is expressed in moral principles and revealed in moral acts and agents. The moral sentiments accompany moral judgments and have either an agreeable or disagreeable quality. They are to be distinguished from other feelings by the fact that (1) they are more representative in character than the sense feelings and the concrete emotions, and (2) they are directed to the moral quality or worth. From these two features follow the *characteristics of the moral sentiments*. These characteristics are necessarily determined by the nature of the moral quality of which the sentiments are but subjective effects. The moral quality being unique and imperative, and its knowledge being self-evident, necessary, and universal, the moral sentiments are essentially — (1) *disinterested*, devoid of any reference to self-interest ; (2) *social*, revealing a common moral nature, common ties, rights, and duties, and contributing to general happiness ; (3)

The moral sentiments are the feelings connected with moral nature.

They accompany moral judgments and are either pleasurable or painful. They are (1) highly representative and (2) directed to moral quality.

Characteristics of the Moral Sentiments :

They are (1) disinterested, (2) social,

(3) practical,
and (4)
regulative.

The moral
sentiments
illustrate the
fact that
sensibility
accompanies
activity.

Hume's
testimony

The moral
sentiments,
excited by
moral quality,
are unique
and
elementary
like it.

The
empiricists
explain them
as an
evolution out
of egoistic,
altruistic,
altruistic

practical, directed to acts and agents and not to passive experiences or things, and (4) *regulative* or *imperative*, influencing us, more or less powerfully, to adopt a course which is viewed as obligatory. All these traits of the moral sentiments are derived from the moral quality which calls them forth. These sentiments illustrate but the general law of human nature that sensibility accompanies activity—the exercise of every organ or faculty has its concomitant sentient experience, the exercise of our moral nature, accordingly, involves the experience of the moral sentiments. As Hume remarks, "A generous and noble character affords a satisfaction even in the survey, and when presented to us, though only in a poem or fable, never fails to charm and delight us" (*Dissertation on the Passions*, § 2)

The moral sentiments, though usually associated with the other emotions—such as resentment, grief, sympathy, admiration, etc., are in their essence unique and elementary. They express in various degrees our regard for the right and our hatred of the wrong

The empiricists, however, are disinclined to accept them as elementary. They contend that the sentiments are highly complex, being a product of several factors, partly emotional and partly rational. The sentiments are explained as a development out of (1) egoistic, (2) ego-altruistic, and (3) altruistic feelings, deepened and refined by (4) reflection. The evolution is traced thus—
(1) When a child is rewarded for certain acts

aided by
reflection.

and punished for others, the child comes to associate pleasure with the one class and pain with the other class of acts, and thus in future he is led to perform the one, out of expectation of reward, and avoid the other, for fear of punishment. (2) As the ego altruistic feelings develop, love of praise and repugnance to blame supply additional motives for performing the acts which are recommended and avoiding those which are condemned. (3) With the development of sympathy, love and affection also contribute their share to the evolution of the moral sentiments by prompting the child to do what his parents or elders command and to avoid what they prohibit. (4) Finally, when, with the development of intelligence, the child begins to understand the meanings of commands or prohibitions, he would realize the significance of moral precepts and thus would be disposed to follow them on rational grounds. It is to be remembered in this connection that the element of authority associated with the moral sentiment is explained by reference to social enforcement or compulsion what is found enforced comes to be regarded as imperative.

This explanation of the moral sentiments as derivative is evidently unsatisfactory. Like the moral quality, the connected sentiment is, in its essence, simple and *sui generis*. (a) It is more patent in the child than in the adult, in the rustic than in the educated, experience often tends to weaken, if not to quench, its pristine intensity. As Martineau says, "To find the true instinct of con-

Such an explanation, however, is untenable. For—

(a) the sentiments are stronger before the multiplication of experience,

(b) they can never be excited by arbitrary enforcement,

and (c) they always rest on conviction

science, we may more often go with hope to the child, than to the grand-parents." (*Types*, II, p. 72.) (b) Again, the element of authority can never properly be evolved out of an experience of compulsion or social enforcement: enforcement is but the expression, and not the source, of the imperative nature of morality. (c) Furthermore, it is not true that the moral sentiments are blind at first and become rational afterwards they always imply moral quality, which is self-evident since the dawn of moral consciousness. Nevertheless, experience may deepen and refine the moral sentiments, which are often modified by social influence, by proper exercise and discrimination, thus contributing to true moral progress. These sentiments in their intense forms, are known as Shame and Remorse (*Vide Elements of Morals*, Chap. XVII, § 4)

The moral sentiments are sometimes identified with Conscience.

The moral sentiments have at times been identified (specially by utilitarian writers) with conscience, and so the evolution of these sentiments is taken to be the evolution of conscience "The internal sanction of duty," writes Mill, "is a pain, more or less intense, attendant on violation of duty, which in properly cultivated moral natures rises, in the more serious cases, into shrinking from it as an impossibility. This feeling, when disinterested, and connecting itself with the pure idea of duty, and not with some particular form of it, or with any of the merely accessory circumstances, is the essence of conscience." (*Utilitarianism*, pp. 41-42) This view, however, is not

justified by the facts of consciousness Conscience does not merely move us , it *convinces* us. We do not blindly accept what is right or wrong. The right is self-evident, necessary, and universal in character The moral sentiments, as concomitants of moral judgments, generally indicate the legitimate or illegitimate uses of our powers and dispositions (*Vide Elements of Morals*, Chap XVII, § 3 and § 6)

however, is
not tenable.

§ 15 Religious Sentiment The religious sentiment may be marked off as the mingled emotion of awe and delight which is excited by the idea of the invisible world and specially by the notion of a mysterious power supposed to preside over human destiny This feeling is a highly composite one having in it elements of various emotions (1) Thus, as a *feeling of personal dependence* on a Supernatural Being, it includes a sublimated form of self-feeling The *egocistic feeling of fear* is present, more or less, in every form of religion, the lowest forms being based on abject terror. (2) Again, as implying a common human destiny, the religious sentiment is eminently a *social feeling* Fixed common ritual strengthens this social factor , and a germ of it is present even in early forms of religion in the shape of family piety underlying the worship of ancestors. Our faith in divine grace and benevolence calls forth also *love and affection* towards Him. (3) The apprehension of God as the eternal intellect, the fount of all reality and truth, stimulates the *intellectual sentiment* which is intensified by the concep-

The Religious Sentiment is a composite emotion excited by the idea of a Supreme Being or Beings and belief in a Future Life. It involves (1) a feeling of fear or of personal dependence,

(2) affection or social feeling,

and (3) intellectual,

(4) *aesthetic*,and (5) moral
sentimentsIn its pure
and higher
form it has an
elevating
influence on
life

tion of the world as an intelligible whole. (4) The thought of the world as a cosmos, revealing beauty and order in every part, cannot but lead us to entertain the *aesthetic sentiment* towards Him as the source of all harmony and excellence. That the aesthetic sentiment in a crude or refined form is always present in the religious, is attested by the fact that art is bound up with worship in every age. The sentiment of *sublimity* is also present, since the Deity is conceived as eternal, omnipotent, and infinite. (5) Finally, the *moral sentiment* colours, more or less, all the higher forms of religion. The religious sentiment in an elevated form is directed towards a Being who is the embodiment of all perfection, holiness, and justice. Thus, the religious sentiment absorbs elements of almost all the emotions in a more or less refined or exalted form. And the religious sentiment in an exalted form, embodying all that is good and great in the intellectual, aesthetic, and moral sentiments, is a potent impulse for self improvement and the improvement of mankind as well.

"True religion
Is always mild, propitious, and humble,
Plays not the tyrant, plants no faith in blood,
Nor bears destruction on her chariot wheels,
But stoops to polish, succour, and redress,
And builds her grandeur on the public good."

(J. Miller)

§ 16 Development of Emotion. To understand the development of emotion aright we

must take into account the different factors which contribute to it. Let us, then, briefly indicate these factors, variation in which brings about a variation in the emotional development. Generally two principal factors are found to contribute to such development. These are—(I) the Instinctive and (II) the Empirical. Let us separately notice them here.

(I) *The Instinctive Factor* It includes general nervous and mental agitation connected with an emotion. The diffusion of the nervous excitement is an original law of our constitution ; the diffused nerve-currents may affect the internal organs or the outward *expression* which is observable to others. This outward expression is but a part of the general reflex motor excitation induced by an emotion , and it manifests itself either (1) in a comparatively general or (2) in a special form. These expressions indicate the development of an emotion ; and when they continue unchecked, they contribute also to its development. Let us consider the two forms of expression separately .

(I) *Differences of Emotive Reaction owing to the Pleasurable or Painful Aspect.* The instinctive expression of an emotion varies broadly with its character as an agreeable or painful experience. Thus, (a) the characteristic expression of joy is not to be confounded with (b) the characteristic expression of grief In a pleasurable emotion the movements are lively and vigorous, while in a painful emotion the movements are slow and depressed. The vital energy is usually heightened

Factors contributing to emotional development

(I) The Instinctive Factor, involving general psycho-physical agitation, manifesting itself

either (1) in the form of the broad contrast between the expression of pleasure and that of pain

in the one case and lowered in the other. (*Cf.* The Law of Self-Conservation)

or (2) in the form of the special expressions of the different emotions.

(2) *Specialised Manifestations of Emotion*
Expressions of emotions are distinguished not merely by the broad contrast between the manifestations of pleasure and pain, but also by the special manifestations corresponding to the different emotions. The look of fear, for example, is never confounded with the look of anger. The somatic resonance connected with a special emotion contributes an additional element of feeling, which colours or determines the emotion itself. In fear, for example, the sensations connected with trembling determine to a certain extent the character of the feeling itself

Explanation
of the
characteristic
movements
of the
different
emotions
from the
stand-point of
heredity.

The characteristic expressions of the different emotions sometimes include certain special movements (*e.g.*, clenching of the fist in anger, scratching of the head in mental perplexity). Such movements are explained from the stand-point of heredity as either (a) the survival of movements which were once necessary to our remote ancestors (*e.g.*, clenching of the fist in anger), or 'b) the extension of a movement, found useful in a certain sphere, to another sphere by the analogy of feeling (*e.g.*, scratching of a part of our body might have removed the uneasy itching sensation and thus it has been extended to the head when we are mentally perplexed).

The instinctive factor referred to above implies that an emotion is but a reflex discharge following an appropriate excitant. But the doctrine of

heredity advocates the view that an emotion may be excited *independently of its usual presentative stimulus*. Thus, children display fear before strangers and ferocious animals at an age when experience could not possibly have taught the evil consequences connected with them. By the principle of heredity it is explained thus: our ancestors usually suffered from strangers and ferocious animals, an association was then established and organized. Having inherited the nervous modifications and connections, we have thus an inherited tendency, from the very beginning of life, to be afraid of strangers and ferocious animals.

of heredity
tries to trace
emotional
expressions to
ancestral
experience.

(II) *Effect of Experience.* (1) *Modification of Instinctive Reactions.* (a) One of the earliest effects of experience is to tone down the primitive expressions of feelings. It is said that civilization consists in hypocrisy. The remark is at least partially true in this case. We suppress, in many cases the natural expressions of feelings and put on sometimes an air of indifference. (b) Education tends to substitute pantomimic gestures or other signs for the natural expressions of the emotions. (c) Experience strengthens or intensifies the emotional dispositions which subsequently influence conduct.

(II) Experi-
ence
(1) modifying
instinctive
re-actions,

(2) *Growth of Presentative Factor in Emotion and of Ideal Feeling* (a) Widening experience brings within the range of human knowledge numerous and varied objects capable of exciting the different emotions in us, fear, for example, is excited by more numerous objects in adult life than in infancy (b) With the growth of experience

(2) widening
feelings
by the
multiplication
of experience
and the
development
of representa-
tion,

and the development of the power of ideation, ideal feelings or emotions make their appearance such feelings are excited merely by the representation of appropriate objects. When, for example, we merely imagine a provocation or injury, we may experience anger illustrated as an ideal emotion.

(3) *widening and deepening emotions by association and repetition,*

(3) *Associated Feeling.* An important result of experience is the deepening and widening of feelings through repetition and association. (a) Through assimilative cumulation an emotion may be deepened, such as the deepening of horror through the repetition of a crime, or the intensification of gratitude due to repeated acts of kindness (b) The range of feeling is widened through association Even a neutral object may come to acquire an agreeable or disagreeable aspect by its association with another object exciting pleasure or pain Thus, the bleating of the lamb, though not by itself agreeable or beautiful, may acquire this feature owing to its association with woodland, sunshine, and agreeable surroundings This transfer of feeling takes place by means of the law of transference explained above. (*Vide Chap. X, § 10.*)

It is to be distinctly remembered in this connection that, in this associative transference of feeling, the reference to the intermediate object, through which the transference takes place, is dropped, and thus the new object seems *directly* to be agreeable or disagreeable as the case may be. Here is an important point of difference between associative integration of presentations with affect-

ive elements and that of presentations with one another without such elements. It may be mentioned here that the mass of the feelings connected with familiar objects, such as home, friend, *etc.*, may be traced to the influence of this association.

(4) *Differentiation of Emotion or Its Refinement.*

As a result of varied experience, different shades of one and the same emotion gradually manifest themselves. The primitive vexation or anger, for example, may assume different forms—such as indignation, resentment, and animosity.

and
(4) differenti-
ating and
refining them.

§ 17. Culture of Emotion. The importance of the feelings determines the importance of their culture. We can make our lives happy or miserable by the proper or improper regulation of our feelings. And the due cultivation of feeling is specially important in the case of the emotions which influence us so much and which, by reason of their representative character, are more under our control. The culture of the emotions may proceed either (1) negatively by way of inhibition or weakening, or (2) positively by way of promotion or strengthening.

Due
regulation of
the feelings
and the
emotions is a
means to
happiness
and progress.

The emotions
may be
regulated
either

(1) The negative form is illustrated in checking, toning down, or even stifling undesirable emotions. This is done partly by checking the outward manifestations when the feelings are moderate in intensity and partly by the direction of attention to something else than the exciting cause. Intellectual culture and volitional development enable us to a great extent to control our feelings.

(1) negatively
by weakening
or extinguish-
ing those
that are
undesirable,

(2) The positive aspect is illustrated in the

or
(2) positively,

by strengthening and furthering those that are desirable

furtherance of an emotion by education, training, and multiplication of experience. The presentation of appropriate materials favours the development of the connected emotions. Imitation also favours the development of an emotion. The connection between an emotion and its expression being natural, when one imitates the expression he places himself on the way to experience the feeling. Again, the direction of thoughts to appropriate objects or their representations leads to the development of the connected emotions.

§ 18 Exercises

- ✓ 1 Distinguish Sense-Feelings, Emotions, and Sentiments. How are Emotions to be classified?
- ✓ 2 Show that Emotions have a mental and a bodily side and discuss the relation between the two. Illustrate your remarks by reference to Anger and Pity
- 3 Describe the influence of the Emotions on Thought. What effect has experience upon the primitive manifestations of the Emotions?
- 4 Explain the nature and conditions of Sympathy, and determine its place in a classification of Emotions.
- 5 Give an account of the nature and growth of the feeling of Sympathy.
- 6 What do you mean by the Intellectual Sentiment? Describe its different forms and state how it may be cultivated. Give a psychological analysis of the Love of Truth.
- 7. What is the Moral Sentiment? Wherein does the Aesthetic Sentiment agree with, and wherein does it differ from, the Moral Sentiment?
- 8 Analyse the Moral Sentiment and trace the influence of authority on its development.
- 9 Analyse the following states of mind — Fear, Anger, and Love
- 10 What marks off a crude from a cultivated Aesthetic

Taste? Indicate the principal stages in the development of the latter out of the former.

11 Is there, in your opinion, any way of determining the precise part played by Association in the Effects of the Fine Arts? Discuss the question by a reference to the arts of Music and Architecture

12 What is meant by the 'diffusive effect' of an Emotion? What do you understand by a fine, sensitive nature?

13 Explain the re-action upon Feeling of its normal physiological expression, and illustrate it with reference to the feeling of wounded self-respect, e.g., in the case of a school-boy unjustly punished before the whole class. Distinguish, in this connection, between the absence of sensibility and the voluntary mastery over expression.

14 Distinguish Feeling, Emotion, and Mood How are Emotions formed? Give a concrete illustration

15 Trace the growth of the Æsthetic Feeling, and, in particular, of the Sense of the Sublime

16 Explain the operation of the Law of Relativity in the province of Feeling, drawing your illustrations from the feelings of the Sublime and the Ridiculous

17. Is any rational explanation possible of the connection of Emotion with its bodily expression? Examine the proposition that the consciousness of the bodily changes is the Emotion

18 Why is the education of the feelings important, and, especially, the education of the higher Emotions? Show in detail how such education may be attempted

19 Indicate the chief characteristics of the Moral Sentiment Show its connexion with the feeling of Sympathy

20 What are the general considerations that guide us in interpreting the kind and estimating the amount of other people's feelings? Whether are the organic or the muscular manifestations of feeling the more important for purposes of Fine Art representation?

21. Distinguish Feeling, Emotion, and Passion. State the effects upon Feeling of prolonged stimulation and of change. How is Feeling influenced by Habit?

22 Classify the causes of Laughter, and inquire whether they are reducible to one principle

23 Should a theory of Laughter, in your opinion, cover the facts derived from the study of different periods of life, different races of men, different species of animals? Do any current theories appear to you to give an adequate account of these facts?

24 Examine the question whether Compassion is a distinct principle or resolvable into others. What is the end of Compassion, and what renders it practically important?

25 Analyse the Emotion of Malevolence, and compare the pleasure of Malevolence with that of Benevolence. How far does Intellectual and Moral Culture destroy the capacity for this pleasure?

26 What is meant by the Sense of Shame? Distinguish True from False Shame. Inquire into the circumstances which excite this feeling, with a view to determine its exact relation to Conscience or the Moral Sentiment.

27 Set forth the character of the Feelings called Aesthetic. Why are they so called?

28 Explain the importance of the association of ideas in the Theory of Beauty

29 Investigate the nature and determining conditions of the Feeling of the Sublime

30 State and examine the Theories of the Ludicrous which have been put forward by Hobbes and other philosophers

31. Examine the possibility and scope of a science of Aesthetics

32 Define the end of the Fine Arts. Under what conditions are painful feelings admissible in Art?

33 Does the emotion of Beauty depend on the perception of some quality in objects? or does the attribution of such a quality depend on an emotion?

34 What do you understand by the Ego-Altruistic Emotions? Do they influence in any way the development of the Emotions?

BOOK V

CONATION.

CHAPTER XVI.

ACTIVE ELEMENTS

§ 1. Character and Scope of Conation

The term 'Conation' (from Lat *conor*, *conatus*, to attempt, to strive after), coined by Sir W Hamilton, stands for the entire active attitude of the mind—indicated by such words as 'trying', 'craving,' 'longing,' 'desiring', 'wishing', and 'willing'. No doubt, every form of consciousness involves, as we have seen, some degree of mental activity or watchfulness, but what is meant by 'conation' involves this aspect of activity in a prominent form. It is a condition of striving after something, primarily manifested in some sort of craving and secondarily in the form of movement and outward action. It is characterized by unrest and tends to issue itself in action. It is, so to speak, the executive side of our mental life, without which it would be but a dream. When ideas are wedded to feelings, they help the genesis of desires which move us to action.

(*Vide* § 9.) Constituted as we are, feeling forms the connecting link between cognition and conation. "It forms the bridge, and contains the motive [*i.e.*, what moves us to action], by which we are roused from mere knowledge to appetency,

Conation indicates an active attitude of mind manifested in the form of trying or striving

Feeling in the human constitution is the connecting link between cognition and conation.

—to conation, by reference to which we move ourselves so as to attain the end in view. Without some kind or another of complacency with an object, there could be no tendency, no protension of the mind to attain this object as an end, and we could, therefore, determine ourselves to no overt action. The mere cognition leaves us cold and unexcited, the awakened feeling infuses warmth and life into us and our action, it supplies action with an interest, and, without an interest, there is for us no voluntary action possible. Without the intervention of feeling, the cognition stands divorced from the conation, and, apart from feeling, all conscious endeavour after anything would be altogether incomprehensible" (Hamilton, *Metaphysics*, II, pp. 425-426) If we describe feeling as essentially the subjective and cognition as chiefly the objective side of our mental life we may call conation its active side. It is, no doubt, related to an object, but only with a view to deal with it in one form or another. "Conation," says Prof. Stout, "constitutes the active side of our conscious being. It is the activity of the subject in relation to its object. It involves a tendency to do work upon the object, to alter it, to expel it from consciousness, or to bring it more vividly and completely before consciousness. By thus operating on its object the subject discovers the nature of the object, the way in which it behaves under various modes of treatment" (*Manual*, p. 69)

Conation as an active tendency has always reference to an end, either consciously or uncon-

reference to
an end

sciously pursued. Thus, even in sucking, winking, or laughing there are ends, though these do not consciously operate in the mind; while, in opening a door, dressing, or walking, ends may only subconsciously operate. An end consciously operates as a purpose in the case of a desire or volition. But whether an end consciously operates or not, it always influences activity—either physiologically, sub-consciously, or consciously. In fact, the attainment of the end of an activity means its extinction. Thus, a distinction is drawn between the *end-state* and the *end* in the case of conation or action. The *end-state* is the terminus marked by the actual satisfaction of a craving and so its cessation, while the *end* is the representation of what is calculated to remove a want. The one refers to the state of realization or actual attainment, while the other only to the conditions of satisfaction as apprehended by the subject. The end-state often escapes our notice because of (1) our perpetual cravings (so that no sooner is one end-state reached than another end-state is wanted to satisfy another propensity) and (2) the complex or the ideal character of most of our ends which are seldom fully satisfied. It may be mentioned in this connection that the general conative tendency assumes different forms in different cases owing to variation in objects and circumstances and also our different needs and susceptibilities. Conation as a psychical process thus involves (1) its direction towards an end-state, which is its fulfilment, (2) a characteristic form of consciousness.

Distinction
between
end-state
and end.

The end-state
often escapes
our notice.

Conation
assumes
different
forms owing
to variation
in subjective,
organic, and
external
conditions.

connected with it, and (3) its relation to a definite object, and, of these three conditions, the second constitutes its very essence. "All that is necessary to constitute an object of conative consciousness," writes Prof Stout, "is a cognisance of the conditions of satisfaction which gives a guiding clue, however vague and fragmentary, to the subsequent development of the psychical process" (*Manual*; p. 66.)

^{*}
Conation,
whether in
the form of
appetition or
aversion, has
for its end
some
change in
consciousness.

It is clear from the preceding account that conation, as an active attitude, may manifest itself either in the positive form of appetition or in the negative form of aversion, and in either case its end evidently is some change in consciousness, either in a clear or a vague form. Even in the case of hunger or winking, a change is produced in consciousness—if not in the clear region of attentive fixation, at least in the obscure region of sub-consciousness. We feel in every case, when conation is satisfied, that at least the back-ground is changed, even if the central image remains the same. In reading a book, sending a message, taking a meal, or shunning a reptile on the way, we bring about changes in consciousness, more or less distinct, through pursuit or avoidance of objects. Conation in its widest sense thus includes all activities, mental or physical, by means of which such changes are brought about. Hence Conation in a broad sense includes not merely desires and volitions, but all tendencies, impulses, and movements. It covers both voluntary and non-voluntary acts whether performed in a conscious, semi-conscious, or apparently unconscious way. It, accordingly, includes,

Thus, in its
widest sense,
Conation
includes both
voluntary and
non-voluntary
acts

besides (1) voluntary activity, such activities as (2) spontaneous, (3) reflex, (4) instinctive, and even (5) secondarily automatic or habitual

§ 2. Sources of Activity. The sources of activity, as indicated above, are (1) partly organic and (2) partly mental. Though in psychology we are primarily concerned with mental activities—desires and volitions—yet, to explain them satisfactorily, we must refer to their originating conditions, such as organic wants and instinctive tendencies. We must, moreover, take into account the various forms of movement which furnish materials for an effective execution of an act of Will. We shall, accordingly, in the present chapter confine our attention to the exposition of the primary sources of activity and the rudimentary forms of movement without which an exercise of Will is rendered impossible or ineffective. Having done this, we shall in the next chapter explain the character of Will and the conditions of its exercise. Let us, then, first examine here the primitive forms of movement; and next we shall turn our attention to the consideration of the springs of activity.

The sources of activity are partly organic and partly mental.

The movements themselves are materials for an efficient exercise of Will.
In the present chapter we shall confine our attention to primitive movements and primary sources of activity.

§ 3. Primitive Movements. The primitive movements, which furnish materials for the performance of voluntary acts later on, are of three kinds, *viz.*, (I) Spontaneous, (II) Reflex, and (III) Instinctive Movements. Let us consider them one by one.

(I) *Spontaneous or Random Movement.* These movements are non-voluntary in character, being the outcome of energy stored in our system. As

The primitive movements are (I) Spontaneous, (II) Reflex, and (III) Instinctive.

(I) Spontaneous or Random movements

are the outcome of the natural flow of energy from motor centres, not excited by outward stimulation.

Bain puts it, 'the internal fires are generating force which it is impossible for us to repress': the food which we take and digest gives rise to energy which finds outlet in spontaneous movements. They are not psychically initiated there is no pre-conception either of the movement or of its result. They are distinguished from reflex movements by the fact that they are not the outcome of a prior sensory stimulation. Dancing, romping, and running, due to exuberance of energy in the case of vigorous children, may be taken as examples of such movements.

(II) Reflex Movements are due to organic re-action, being induced by outward stimuli. They assume three forms. (1) general, (2) special, and (3) habitual.

(II) *Reflex Movement* is illustrated either (1) in a general form or (2) in a specialised form (1) The general form is illustrated in the tendency of every feeling, if sufficiently strong, to stimulate or innervate the muscles. Sully remarks—"This diffused form of reflex motor re-action is important as supplying unformed material for volitional selection" [*Outlines*, p 380] (2) The specialised form of reflex movement may be either (a) special reflex, or (b) conscious reflex, or (c) habitual movements, described by Hartley and Bain as secondarily reflex. (a) Special reflex is illustrated when the hand, for example, non-voluntarily closes when something comes in contact with it. Inspiration and expiration may also be taken as examples of this class (b) Conscious reflex is illustrated when we turn our eyes towards a light. There is a vague accompaniment of consciousness in such movements, and they may be described as psychically initiated to a certain extent (c) Habitual move-

ments become uniform and mechanical like reflex ones, being called forth by appropriate circumstances. Hence, they have generally been described as *secondarily reflex* or *automatic**.

Reflex movements, like spontaneous ones, are devoid of any antecedent purpose, and they are uniform or mechanical in character—the same motor response always occurring when a definite sensory stimulus recurs. Reflex movements are distinguished from spontaneous ones by the fact that they are evoked by sensory stimulation. There are two nerve currents. the sensory and the motor, the former conditioning the latter. In spontaneous movement there is the motor current alone, due to the release of energy from the centres.

(III) *Instinctive Movement.* All original unacquired movements, determined by congenital organic arrangements, may be regarded as instinctive. They may be distinguished from reflex movements by the following traits.—(a) They are more complex, often involving a series of movements (*e.g.*, the building instinct of the beaver). (b) Being more complex, they are accompanied by a fuller active consciousness. Psychical initiation is more prominent here. (c) The antecedent consciousness is accompanied by feeling—usually of a vague, painful character (as illustrated in migratory birds). (d) There is implied a purpose or end in an instinctive movement; or, as evolutionists call it, it is characterized by biological purposiveness · every

Habitual movements are known as secondarily reflex or automatic. Reflex and Spontaneous Movements are mechanical in character; but, while the former are evoked by outward stimuli, the latter are not so.

(III) Instinctive Movements are original complex movements, accompanied by fuller active consciousness and initiated by a vague feeling of want with an implicit reference to some end.

* The term 'automatic' has been used by Bain in the sense of 'reflex' and by Sully in the sense of 'spontaneous' movement.

instinctive action implies some end unconsciously operating in the mind of an animal for securing some advantage to it. Sucking⁶ is an illustration of such movement Expressive movements, according to Sully, are allied to this group *

§ 4 Emotional Expression and Gesture

We have already seen that the connection between feeling and organic disturbance is very close

Vide Chap. XIV. § 5) Emotions ordinarily manifest themselves in expression: face is taken

to be the 'mirror of the mind'—at least on its emotional side. Two opposite theories have been started as to the ground of this connection: (1) some hold that the emotion is the cause, of which the physical expression is the effect, (2) while others

(e.g., Prof James) contend that the expression itself determines the character of the emotion and so may be viewed as its cause. If, however, mind and body are very intimately connected with each other, any such question of priority must necessarily be an idle one.

"All attempts to prove priority," says Baldwin, "are vain, considering the fact that muscular expression is peripheral, while the nervous basis of emotion is central"

Emotions manifest themselves in expression

This is explained in either of two ways

(1) emotion determines the character of expression or (2) the character of expression determines an emotion.

The question of priority is, however, an idle one, since an emotion and its expression

* Instinctive actions have been explained by evolutionists by reference to heredity. It is said that acts found by our ancestors as useful were registered in their brains. These nervous modifications, having been transmitted to posterity and deepened and enriched by further experience, have become in the later generations of mankind 'instincts' (*Vide Chap. I, § 8*). But it may be said against this view that we do not find at present any transmission to subsequent generations of secondarily automatic movements which, through habit, become, so to speak, a second nature in us. Moreover, to take instincts as but lapsed intelligence is to maintain that intelligence declines with the progress of ages. Instincts are rather natural provisions to meet the fundamental wants of life. (*Vide Elements of Morals, Chap. XIX, § 1*)

(*Handbook of Psychology*, Feeling and Will, p. 252.) As forms of excitement, the emotions indicate comparatively intense nervous stimulation, which finds expression in suitable nervous discharge. Thus, apart from qualitative differences, there is simply the general diffusive effect. Qualitative differences, according to their more or less general character, find expression in more or less specialised muscular indications or gestures.

Darwin, Spencer, Hecker, Mantegazza, and others have tried to explain the distinctive gestures of the different emotions by reference to their original utility. The different gestures are, accordingly, viewed as but remnants of once serviceable habits built up by experience and association, extended by analogy of feeling, and perpetuated by heredity. Thus, the snarl or sneer, according to Darwin, is a survival of the once useful habit of our ancestors, who used to uncover their large teeth for attack. The distension of the nostrils in anger is likewise explained by Spencer as the remnant of the way in which our ancestors breathed during combat when their "mouth was filled up by a part of an antagonist's body that had been seized." The special gesture of disgust is similarly interpreted as the extension of the movements connected with retching to whatever is disagreeable, by the analogy of feeling. The nod forward in affirmation is taken to be a movement after the analogy of taking food into the mouth, and the shaking of the head in negation is believed to be the continuation of similar movements performed by

are intimately
connected
with each
other.
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Darwin,
Spencer,
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trace the
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special lines
of nervous
discharge
along the
easiest
channels.

babies in keeping disagreeable things from their mouth. Such explanations, however, are not always tenable, and it is extremely doubtful whether we can discover utility in every gesture. The gestures may, after all, be the expression of special lines of nervous discharge determined by the character of organic disturbance caused by an emotion. They may at times be, as Prof. James suggests, "purely mechanical or physiological outpourings through the easiest drainage-channels—the pneumogastrics and sympathetic nerves happening under ordinary circumstances to be such channels." (*Principles of Psychology*, II, p. 482.) And Spencer maintains that the *smallest* muscles are usually such channels, as is proved by the first movement of certain organs in different animals (e.g., the tail in dogs, cats, and birds, the ears in horses, the crest in parrots, the face and fingers in man).

Ideo motor
action
indicates a
movement
induced
simply
by motor
representa-
tion.

Ideo motor
action is
viewed by
Harris as but
form of
action.

§ 5 Ideo-motor Action. Ideo-motor action implies that the idea of a movement induces the movement without any intervention of will, such as we find illustrated in the case of the fascination of a precipice. The idea of falling is so strongly suggested to the mind that one has to put forth effort in such a case to resist the suggestion. It is much like the infatuation of the moth in the presence of light. Ideo-motor action has by some been viewed as but a form of reflex action, which has been classified by Harris into two main divisions—(1) periphero-motor and (2) centro-motor (1) The former, according to him, including three forms—viz., (a) excito-motor (e.g., hiccuph

or the secretion of the digestive fluids), (b) algio-motor or pain reflexes (*e.g.*, perspiration or lachrymation from pain), and (c; sensori-motor (*e.g.*, winking, startling); and (2) the latter including two forms—*viz.*, (a) emotio-motor or emotional 'expressions' (*e.g.*, syncope from fear, sighing, blushing) and (b) ideo-motor. But ideo-motor action may broadly be distinguished from reflex movement by the fact that action is induced by thought and not by sensory stimulation

— Ideo-motor action is evidently due to the identity of the centres of representation and action. (*Vide* Chap X, § 2.) If the same centres are exercised in both cases, only with a difference in intensity, evidently a faint excitation in representation has a tendency to re-instate the original experience. Ideo motor movements are usually illustrated in three principal forms.—(1) In some cases these are purely the outcome of vivid representations or fixed ideas which have got a firm hold of the mind as when a man leaps from a precipice under the influence of a vivid idea (2) In other cases imitation imparts the idea which is then carried into action, such as is found in the balancing movements performed by a spectator witnessing rope-dancing. Mob-action may in many cases be explained in this way (3) In other cases, again, there may be a rudimentary desire which introduces the idea that is immediately carried into action, as when a boy is led promptly to execute an action under tempting circumstances (*e.g.*, when he plunges it to a stream with

Ideo motor.
action is due
to the
identity of
the centres of
representa-
tion and
action.

Three forms
of ideo-motor
movements.

a momentary desire of admiration) This last form usually merges into voluntary action

Imitation is performance of action observed or suggested.

It is to a certain extent instinctive.

Its grades and forms

(1) Instinctive.

§ 6 Imitation and Play. Imitation implies the performance of an action observed in another or suggested from without.* Thus, the child imitates the movements of an adult; a parrot imitates the voices it hears. Imitation appears in various forms and degrees, and it manifests itself very early in life. Children have been observed in their third or fourth month to pout, or purse their lips and blow on noticing such movements in others. It would thus appear that imitation is to a certain extent instinctive and congenital, though to a great extent it depends on experience. It always involves, however, mental plasticity which is the condition of all experience. Its various grades and forms may be indicated thus:—

(1) *The Instinctive Form* It is noticed that there is an instinctive tendency in children to utter articulate sounds, or in birds to imitate the song or alarm-note of other members of their species. Such a tendency implies, no doubt, congenital connexions among certain centres predisposing animals to imitate certain forms of activity. The facility with which children learn to walk and the predisposing tendency towards it favour also the hypothesis that walking in the case of man may,

* This use of the term is generally accepted and is substantially in agreement with the views of Freyer and Lloyd Morgan. Some writers (*e.g.*, James, Baldwin) use the term in a wider sense to include all forms of repetition in thought, action, or both, which reinstates a copy. In this sense Imitation includes what is called 'self-imitation' or the repetition or production of what is in one's own mind.

to a certain extent at least, be of this character. It is scarcely necessary to mention that such instinctive tendencies are but crude materials which are perfected by experience

(2) *The Ideo-motor Form.* In some cases, as explained in section 5, imitation is of the ideo-motor type. A vivid representation of a movement induces action in such a case without any choice or volitional effort, as when a spectator imitates, spontaneously as it were, the balancing movements of a rope-walker. In some cases imitative movements resemble reflex action, as in imitative coughing or yawning.

(3) *Conscious Imitation* What we ordinarily mean by imitation often refers to a conscious process in which the visual or auditory representation of a movement is followed by its execution. Thus, children imitate the behaviour of adults, and adults, too, imitate the fashion set before them. The direction of this conscious form of imitation is generally determined, to a great extent, by natural endowment, taste, or interest. Thus, some may be disposed to imitate sounds, while others, visual experiences. And this conscious imitation is in some cases merely of the reproductive form, while in others, rather of the constructive type. Thus, one may simply mimic the gesture or voice of another, or he may caricature the eccentricities of a person.

Imitation always presupposes some experience and control of elementary movements. The association between a definite visual or auditory sign and the special movement is gradually established by experience in quite a tentative way. Even in

(2) Ideo-motor,

and (3)
Conscious,

either of the
reproductive
or construc-
tive type.

Imitation
presupposes
experience
and control
of elementary
movements.

Imitation is perfected by experience

the case of the instinctive or the ideo-motor form, the start may be given by a previous disposition or impression, but the definiteness of execution can be secured only by the teachings of experience. Thus, the early articulations of infants acquire definite shape and develop into definite speech only through the failures and successes of experience.

Imitation contributes to mental development.

It is illustrated in the play of children.

Children generally imitate to gratify their imitative impulse, while adults, to promote some ulterior end.

Imitation is an important instrument of mental development. The mimetic impulse is very strong in early years and often finds expression in play. In this way children learn very quickly what they have subsequently to do in adult life. By dressing their dolls, giving them in marriage, constructing rooms for them, by cooking food or pretending to go to office, children lay the foundation of what they have to do afterwards. They in this way learn what is decent, elegant, or decorous. Though, however, such movements turn out to be useful to children afterwards, yet when movements are performed they are not performed for that end in view. Children often imitate simply for the gratification of the imitative impulse. With the increase of years men imitate acts or movements for ulterior ends, which at times may not have any natural connection with them and may be quite of a selfish character. Thus, courtiers may be found

"To shake with laughter, ere the jest they hear,
 To pour, at will, the counterfeited tear
 And, as their patron hints the cold or heat,
 To shake in dog-days, in December sweat."

(Dr. Johnson.)

§ 7. Appetites, Impulses, and Emotions
 Appetites are the periodic wants of our organism manifesting themselves in the form of cravings which usually press for activity with a greater or less vehemence. They are generally accompanied by unrest or uneasy feeling, which disappears when they are gratified. Hunger, thirst, sex, sleep, and exercise may be cited as examples. But besides these 'natural appetites,' due to the constitution of our organism, there are 'artificial appetites', which are often created by regular indulgences, such as cravings for tobacco, alcohol, and company

The term impulse is used in (1) a narrow and (2) a wide sense. (1) In a narrow sense it indicates a conation which operates through its own strength irrespective of any other consideration. It implies a tendency moving us to action solely by reference to the circumstances out of which it arises and without any reference to other motives or ends of life. It is thus cut off from the system of ends which regulate rational life. Hence impulsive action is contrasted with an action due to deliberation. "The word *impulse*," says Prof Stout, "is properly applied to any conative tendency, so far as it operates by its own isolated intensity, apart from its relation to a general system of motives. Action on impulse is thus contrasted with action which results from reflexion or deliberation. In deliberation a man, instead of following out the impulse arising from the circumstances of the present moment, brings the contemplated

Appetites are periodic organic cravings pressing for satisfaction.

Distinction between natural and artificial appetites.

Ambiguity of the term 'Impulse':
 (1) In the narrow sense it stands for a conation which through its intrinsic force moves us to action without any reference to the general system of mental life;

course of action into relation with the total system of his mental life, past and future. He appeals from the Self of the present moment to the total Self" (*Manual*, p. 277) But, besides this narrow and the usual sense of the term, it has at times been used by psychologists and moralists in (2) a wide sense to imply whatever moves us to action—any spring of activity. In this sense instincts, desires and affections are all called impulses, while in the narrow sense the word often stands for instincts (*Vide Elements of Morals*, Chap XIX, § 3) The narrow sense is, no doubt, the sense in which the term is ordinarily used—as an inclination or tendency which for the time being monopolises our attention and carries us in its own direction exclusive of all the rest.*

While the Impulses are incentives to action, the Emotions are primarily restraints upon activity.

Impulses and Emotions Impulses, as active tendencies, should be distinguished from Emotions, which, as pleasurable or painful experiences, are passive feelings excited by certain representations. When we describe the Impulses as active and the Emotions as passive, we do not mean to say that they are absolutely so, they are but different phases of one and the same mind, revealing now more of the one and now more of the other aspect.

* A close examination reveals that the difference between the two senses of the term is not so great as at first appears. Whenever a single spring of activity—an instinct, affection, or desire—operates by itself, it engrosses our attention and so irresistibly impels or moves us to action. Hence, acts resulting from a single spring of activity are called by Wundt and Martineau 'impulsive' or 'spontaneous'. An instinctive action is pre-eminently impulsive, since, excluding choice, it necessarily monopolises attention, as otherwise it would be deliberate and voluntary and not instinctive and impulsive.

(*Vide* Chap. III, § 4.) Thus, Impulses, as general tendencies to action, have often an emotional basis ; and Emotions, indicating a disturbance in our constitution, are apt to find expression in action. But though, like the other sides of our mental and moral life, they are thus closely connected, they are not to be regarded as identical. Feelings generally have a tendency to issue in action, physical or mental ; they are but natural sluices directing the spontaneous flow of energy. But a sluice-gate is not to be confounded with the stream which it regulates. Feelings as such are mere passive experiences, having the capacity of directing energy, by reason of the organic unity of our constitution.* Such a capacity is illustrated even in the case of the representative emotions and the abstract sentiments, which call forth organic or mental activities in the form of physical disturbance or psychical concentration. So natural is this connection that the organic disturbance, in the one case, enters into the very texture of the emotions in the form of somatic resonance ; and reflective attention, in the other, colours the very nature of the sentiments as calm and contemplative emotions. But the activities thus conjoined with feelings are of a reflex character, merely helping their expression. The

Feelings tend
to direct
energy and
thus to beget
Impulses.

Distinction
between Emo-
tions and
Impulses.

* "Every feeling," writes Bain, "in proportion to its strength, is accompanied with movements, and with changes in the organic functions. If a feeling has no such apparent accompaniments, we conclude, either that it is weak, or that there is an effort of voluntary (and, it may be habitual) suppression." (*Mental and Moral Science*, p. 216.)

active tendencies never operate as conscious impulses unless modified by reflection. "Emotion," says Calderwood, "is agitation of feeling, attended by more or less physical disturbance, and always implies a sense of weakness. The Emotions, in common with the Impulses, imply movement of our inner nature, but Desires and Affections are movements towards their objects. Emotions are movements from their objects. Their restraining power is experienced with great diversity of degree, and at their height they attain an overwhelming force, paralysing the other energies." (*Moral Philosophy*, p. 161.)

Emotions and Impulses, though primarily of opposite characters, often influence each other.

Emotions of moderate intensity generally intensify connected Springs of Action.

close
is
the or-
unity of
1

Though emotions are thus passive modifications of the mind, acted upon by appropriate objects, yet such modifications often intensify active impulses which promote their ends. In order to such intensification, however, the emotions must be of moderate strength, as a severe exercise of the mind in one direction precludes at the time a corresponding exercise of it in another (*Vide Chap. V, § 2*). Thus, in an extreme form, wonder stupefies, fear paralyses, anger befools, and grief depresses; while in a moderate form, wonder quickens curiosity, fear stimulates desire for security, anger prompts revenge, and grief augments sympathy and meditation. And it may be mentioned here that impulses in their turn may likewise stimulate emotions, such as when an individual is provoked or terrified by objects thwarting his inclinations or desires. Such reciprocal influence is at once seen to be natural, when we remember the organic unity of our mental

constitution The intellectual, emotional, and conative elements are but varying expressions of the same mind, even when influenced by the same object As Dewey says, "The sensation of hunger so far as it gives us information of the state of our body, is the basis of knowledge; so far as it is a pleasurable or painful affection of self, it is feeling; so far as it is the tendency to re-act upon this feeling, and satisfy it, by bringing about some objective change, it is impulse." (*Psychology*, p. 349)

§ 8 Classification of Springs of Action. The springs of human action have been classified ethically and psychologically. The one classification is based on the relative moral worth of the several springs of activity, while the other on their points of similarity and dissimilarity as mental phenomena. As, however, we are not concerned with the former here, we shall confine our attention to the latter. Attending to the prominent points of similarity and difference, we find that instincts, as primitive sub-conscious cravings, are different from derivative conscious desires, and desires, again, as seeking personal advantage, are different from affections directed to the good of others. And, among instincts, desires, and affections, we may still draw differences according as they are modified in different cases by varieties in their objects, thus preparing the way for further subdivisions. We may, accordingly, subdivide instincts into physical (*e.g.*, hunger and thirst) and mental (*e.g.*, sympathy, parental affection); and the latter again we may divide into self-regarding (*e.g.*, the instinct of self-

Springs of Action have been classified ethically as well as psychologically; but we are concerned here with the latter alone. Psychological classification is based on their prominent points of similarity and difference as mental phenomena.

Different views on the subject

Plato's account

is relative to his political end.

Aristotle's account

is empirical.

The Cartesian account

preservation) and other-regarding (*e.g.*, the affections). Similarly, we may subdivide desires and affections, as they vary owing to variations in their objects or other attendant circumstances. Before attempting, however, such a classification ourselves, let us briefly notice what great thinkers have thought on the point.

1. **Plato's Classification** Plato classifies the springs of action into three, *vis* reason, spirited impulses, and appetites, and attributes virtue or moral excellence to their harmony, *i.e.*, the due regulation of the appetites or non rational impulses by reason. This classification is evidently defective and incomplete, as overlooking many prominent desires and affections of the human mind. It was designed rather to serve the purpose of his ideal commonwealth, in which the several classes—governors, soldiers, and helots—should be placed in due subordination by reference to their respective virtues of wisdom, courage, and temperance.

2. **Aristotle's Classification** Aristotle, no doubt, gives a comparatively long list of impulses as well as of the virtues which arise from their due regulation; but his list is purely empirical, without any principle or system. (*Vide Elements of Morals*, Chap. XII, § 5.)

3. **The Cartesian Account.** Descartes and Malebranche attempt a classification of the springs of action, which is substantially adopted by Spinoza. And all of them maintain that, in the moral sphere, the impulses have their relative moral value which should regulate our choice. The essence of virtue,

as Malebranche says, is to be found in the "Love for their law of order." The list of 'the instinctive impulses or 'primary affections' is thus given by them : wonder, love, hate, desire, joy, and grief. This classification indicates confusion and cross division. Emotions (*e.g.*, wonder) are confounded with Impulses (*e.g.*, desire), and joy or grief does not exclude altogether desire, love, or hate.

involves confusion and cross division

In Hobbes and Hutcheson we find the tendency to extreme simplification. Hobbes reduces all the springs of action to mere Self-love. while Hutcheson supplements it by Benevolence. But the diverse springs of human activity can never be thus traced to the influence of a single impulse or the conflicting tendencies of only two rival combatants.

Hobbes and
Hutcheson
aim at
extreme
simplification.

5. Reid classifies active impulses into mechanical, animal, and rational. Dugald Stewart appropriately characterizes Reid's classification as capricious, for if the appetites have been termed 'animal principles,' because they are common to men and brutes, there is no reason why instincts, which are also common to men and brutes, should be called 'mechanical.' Stewart's own classification is—Appetites, Desires, Affections, Self-love, and Moral Faculty.

Reid's classification is inadequate and inconsistent.

Dugald Stewart's classification.

6. Martineau's Classification Martineau, approving the principle of Stewart's classification, first distinguishes between the Primary and the Secondary Springs of Action. *The Primary Springs of Action* have been defined by him as those impulses which urge a man, "in the way of unreflecting

Martineau's classification :
(I) The primary Springs of Action or instinctive tendencies.
(II) The Secondary

Springs of
Action.

instinct, to appropriate objects or natural expression"; and the *Secondary Springs of Action*, as those "which supervene upon self-knowledge and experience, and in which the preconception is present of an end gratifying to some recognised feeling" When, for example, one is prompted by instinctive hunger to take his food for nourishment, a primary spring of action is illustrated, but when, after tasting a certain food and having, say, an agreeable experience, one subsequently desires to take the food again for the pleasure of the palate and not for satisfying hunger, then the secondary transformation of hunger is illustrated.

Four classes
of the
Primary
Springs
of Action.

(1) *Propensions*,
tending to
preserve the
life of the
individual as
well as that
of the species,
include
(a) the
appetites and
(b) animal
spontaneity.

I. *The Primary Springs of Action* have been classified into four groups —

(1) *Propensions* "They are the forces of first necessity for the mere physical life in its individual maintenance or successive continuance and exhibit the lowest terms on which it could hold its footing in the world at all" (*Types*, II, p. 140) The propensions include (a) the *Organic Appetites* (such as hunger, thirst, sex) and (b) *Animal Spontaneity* (such as "the intermittent springiness and spontaneity of exercise and labour, the vivacious contempt of obstacles and pure triumph of energy")

(2) *Passions*,
tending to
protect life
from injury,

"pathy,"
" " , and
" "

(2) *Passions* They are excited by "painful and uncongenial" objects and are "invariably repulsions, thrusting away what is hurtful or inharmonious, or else withdrawing us thence By this common feature they indicate their proper function, they are evidently provisions for entrenching

our nature in security amid threatening or invading ills, and removing to a great distance whatever jars with its appointed life. These passions are three; distributing themselves according to the three elements of time, and visiting with a distinct feeling what is repugnant to us in the present, in the past, and in the future. Towards an object of natural aversion immediately before us we feel *Antipathy*, towards that which has just hurt us, we experience *Anger*; towards that which menaces us with evil, we look with *Fear*." (*Ibid*, p 141.)

(3) *Affections*. They are attractions towards other persons or animals "reminding us of our kind, if not belonging to it" They imply reciprocity of feeling and are properly directed to personal beings: "They single out," says Martineau, "*personal beings* like ourselves as their indispensable objects; or, if, at their inferior margin, they extend somewhat further down, it is only to take in living beings regarded by them as quasi-personal and drawn into the human analogy" (*Ibid*, p 145). They are—*Parental*, *Social*, and *Compassionate*

(4) *Sentiments* They are directed towards "*ideal relations*, objects of apprehension or thought that are above us, yet potentially ours" (P 151.) They are aspirations after "what is higher than ourselves, whether recognised as personal or not." They are *Wonder* or the intellectual sentiment, prompting us to inquire into the causes of events, *Admiration* or the æsthetic sentiment, directed towards beauty, and *Reverence* or the moral sentiment, directed towards "transcendent goodness," as

(3) *Affections*, tending to the good of others, include (a) parental, (b) social, and (c) compassionate tender feelings.

(4) *Sentiments*, directed towards ideal relations, include (a) wonder, (b) admiration, and (c) reverence, which are the intellectual, æsthetic, and moral forms respectively.

represented in the exalted personalities of heroes, saints, and gods.

*Corresponding
Secondary
Modifications*

(1) Secondary Propensions, such as Gluttony, Voluptuousness, and Greed

(2) Secondary Passions, such as Malice, Vindictiveness, and Mistrust

(3) Secondary Affections or Sentimentality.

(4) Secondary Sentiments, such as love of self-culture æstheticism, and interest in religion

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II. The corresponding *Secondary Springs of Action* include—

(1) *Secondary Propensions*, such as *Gluttony, Voluptuousness, the Love of Ease, Power, or Money*

(2) *Secondary Passions*, such as *Malice or Ill-will* (with its expression in *Censoriousness, Vindictiveness* or the cherishing of resentment, and *Suspiciousness or Mistrust*).

(3) *Secondary Affections or Sentimentality*, such as love of the pleasures of company or of compassion. "If," writes Martineau, "instead of family affection, freely spent on the members of a home, there is a self-regarding play with them, as instruments of sympathetic interest; if, instead of social affection, flowing out upon companions and equals, there is the mere love of society as a means of tasting the fruits of such affection, if, instead of Compassion, there grows up a taste for exciting and indulging Pity, this change is accurately described by saying, that it is a transition from natural health to sentimental disease." (*Ibid.*, p. 177.)

(4) *Secondary Sentiments*, such as *Love of Self-culture, Ästheticism, and Interest in Religion*. These include the cultivation of the intellectual, æsthetic, and moral sentiments for the sake of the pleasure which they bring.

These are the elementary impulses, primary and secondary, which by their different combinations give rise to various *Compound Springs of Action*. The combinations take place according to

the laws of association, *vis.*, those of transference, sympathy, and distance. And thus we get, according to Martineau, the diverse tendencies to action which constitute the materials of our moral life

Martineau, no doubt, has done much in bringing into prominence the doctrine of Impulses and in giving a luminous exposition of their principal forms and varieties Nevertheless, his list is more or less arbitrary and empirical. (1) His list is, accordingly, incomplete There is no mention, for example, of filial or fraternal affection , and the rational impulses, prudential and moral, have been excluded. (2) In his classification he has mixed up impulses and emotions which, as explained above, are distinct mental phenomena, though often closely connected. The passions, for example, are strong and deep feelings which, by reason of their intensity, get a firm hold of the mind and agitate it violently. Hence, popularly, the term is restricted to anger, though, not infrequently, it indicates such ardent dispositions as love and hate The sentiments, likewise, are abstract emotions or highly refined feelings which yield quiet and lasting satisfaction. Fear, anger, or antipathy,—wonder, admiration, or reverence, by itself does not move us to action. In their intense form, they even paralyse activity, as when one is benumbed or stupefied by fear, anger, or wonder, In their moderate form, no doubt, they intensify the associated desires or impulses tending to restore mental equilibrium. Thus, anger may prompt retaliation , fear, flight , and wonder,

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above
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the laws of
association.

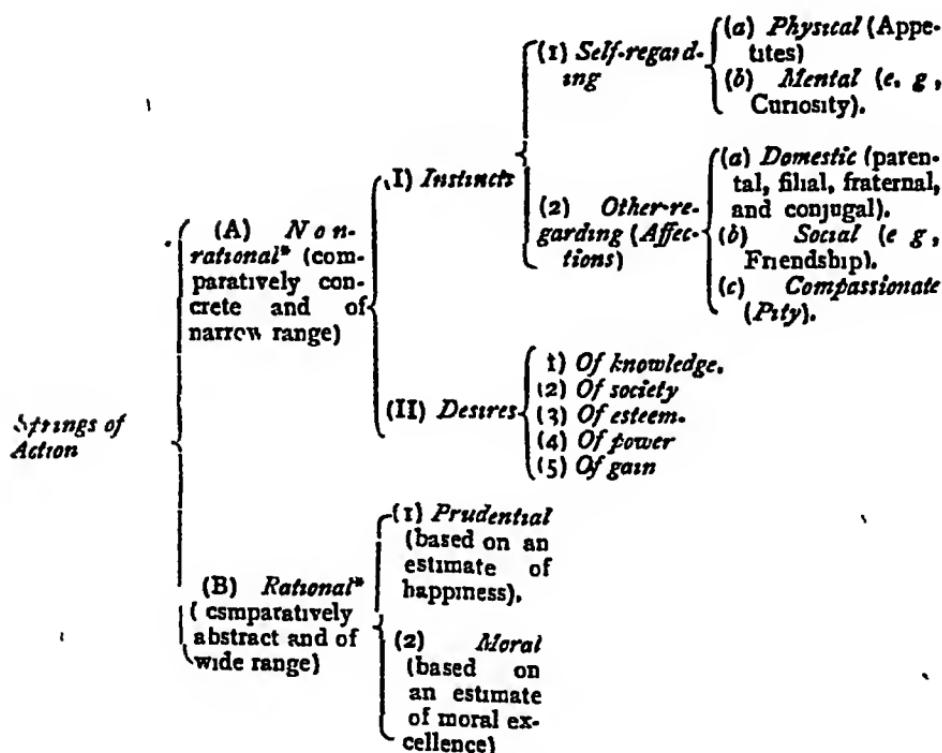
Martineau's
classification,
though
comparatively
full, is
arbitrary and
empirical.
(1) It is
incomplete ;

and (2) it
includes
factors which
are not
properly
impulses.

curiosity. But these active impulses prompted by emotions should never be confounded with them.

Proposed classification.

Proposed Classification Having considered the different views of the Springs of Action, let us attempt a classification, which may be represented in outline, thus —



* Reason as a faculty of principles involved in the higher operations of thought should be distinguished from mere Intelligence which invades in different degrees all forms of consciousness. It may seem inconsistent to maintain that Desires are non-rational and yet they involve special circles of ideas, but a little reflection shows that they are so engrossing in character as to overlook other interests. By monopolizing attention, they preclude a comprehensive view of things and so a rational regulation of conduct. Even the Desire of Knowledge, whose essence seems to be rational, is non-rational in its operation, as it ignores the claims of the other sides of our nature: the student impelled by it is disposed to neglect his health and the other duties of life.

We may first classify the Springs of Action into *Rational* and *Non-rational*, according as the exercise of reason or thought is prominently involved or not, in the form of general notions and principles of action. Strictly speaking, in the human constitution, all impulses in adult life are more or less attended with thought. Every desire has, as Mackenzie puts it, its own 'universe' determined by a special circle of ideas subserving a definite end, such as health, wealth, or honour. Different desires have thus different universes or ends, which at times come in conflict with one another. As, however, more abstract or comprehensive ends are formed, such conflicts are transcended and life comes more and more under the controlling influence of what may be called the rational impulses, such as Prudence and Virtue. They are rational in the sense that they involve an exercise of thought or reason in a prominent form, for elements of reason may be supposed to exist even in what we call Instincts. Reason reflects Nature, and Instinct is but its unconscious operation.

Rational
and Non-
rational
Springs of
Action.

"Instinct and reason how can we divide ?
'Tis the fool's ignorance, and the pedant's pride"*

And if ever we find one following such a desire with a consistent regard for the other interests of life, then he is no longer under the exclusive influence of a desire of knowledge but under the guidance of a comprehensive end, such as prudence or virtue. Thus, Desires, though involving an exercise of thought, should not be confounded wth the Rational Springs of Activity, which are essentially regulative in character.

* "The spider's touch, how exquisitely fine !
Feels at each thread and lives along the line .
In the nice bee, what sense so subtly true
From pois'nous herbs extractis the healing dew ?"

(A) Non-rational Impulses .
 (I) Instincts which blindly prompt us to activity.

Instincts are either
 (1) self-regarding or
 (2) other-regarding.

(A) *Non rational Impulses* are either of the character of (I) blind *Instinct* or of the character of (II) open-eyed *Desire*.

(I) The instincts are untaught aptitudes, beneficial to life , they always imply ends to which they are directed, though these ends, as mentioned above, operate unconsciously in the minds of the animals prompted by them. The Instincts as known to us are either (1) *Self-regarding*, seeking one's own good, or (2) *Other-regarding*, aiming at the good of others (1) *The Self-regarding Instincts*, again, are either (a) *organic* (viz., the appetites) or (b) *mental* (such as curiosity, self-advancement, and self-preservation) (2) *The Other-regarding Instincts* are the *Affections*, in the proper sense of the term, which urge us to promote the well-being of others quite in a disinterested way These Affections are (a) *Domestic* (including parental filial, fraternal, and conjugal forms), (b) *Social* (such as friendship, courtesy, humility), or (c; *Compassionate* (such as sympathy, pity, mercy) The presence of disinterested affections has, no doubt, been disputed by egoistic writers like Hobbes, Helvetius, and Mandeville , but, to every impartial observer, their presence is a patent psychological fact Nay, the very existence of animal creation would be jeopardized without them. "Pain and sorrow," says Butler, "have a right to our assistance , com-

How Instinct varies in the grov'ling swine,
 Compar'd, half-reas'ning elephant, with thine !
 'Twixt that, and Reason, what a nice barrier,
 Tor ever sep'rata, yet for ever near ""

(Pope)

passion puts us in mind of the debt, and that we owe it to ourselves as well as to others."

(II) The other class of Non-rational Impulses is the *Desires* which move us to action for some conscious end in view. The attainment of the end brings satisfaction to the agent; and the expectation of such satisfaction gives urgency to a desire. The principal desires which sway the human mind are—desire (1) of knowledge, (2) of society, (3) of esteem, (4) of power, and (5) of gain. The desire of society is distinguished from social affections by the fact that it is directed to other persons not for their good, but for our own. It comes under what Martineau calls Sentimentality.

(II) Desires
which
influence us
with a
consciousness
of some end in
view.

(B) The *Rational Impulses* include the (1) *prudential* and (2) *moral* judgments with their attendant dispositions "Judgments," says Calderwood, "do not simply and of themselves perform the function of impulse, but these two classes of judgments have associated with them certain dispositions whose impelling force operates with the judgments. These dispositions are—desire of personal advantage (often called self-love), with expectation or hope, and reverence for moral law, with devotion to the Deity as Moral Governor. Without the judgments, the attendant dispositions are not experienced. The judgments, therefore, are properly regarded as the origin of impelling force. On the other hand, without the attendant disposition, the judgments would fail to perform the part of an impulse. The presence of these dispositions depends, not upon the circum-

(B) Rational
Impulses :
(1) Prudence ;
(2) Virtue.

stances in which a man is placed, but upon the degree of intellectual energy bestowed upon the question how far duty or interest is involved. This, therefore, establishes the intellectual origin of the impulse." (*Moral Philosophy*, p. 156.)

Martineau
rejects
rational
impulses on
the ground
that they are
mere 'general
conceptions.'

Martineau refuses to recognise these as an independent class of Impulses, regarding them only as 'general conceptions' which symbolize concrete tendencies represented by the other impulses. Referring to the 'love of right,' he observes, "But the superiority to which I yield myself is the same as before; and this is no more a new spring of action than the law of gravitation, when defined, supplies a new force added on to that by which the rain falls." (*Types*, II, p. 284.) It may be mentioned, however, that though, objectively, rainfall is a particular case of gravity, yet subjectively, there is great difference between a law and a case, a concept and a percept, as well as between their attendant emotions and consequent dispositions. The influence of ideal and permanent ends on our volition is a patent fact of our mental life admitted by all psychologists. There is certainly great difference between the concrete impulses, which furnish particular or definite problems, and the comparatively general tendencies, determined by concepts, which to a great extent pre-determine the character or nature of experience we wish to have. In the words of Martineau himself, "When once I have been furnished with this generalisation, I shall go into every particular moral trial with the conception in my mind, and with the desire that, among

But ideal and
abiding ends,
influenced by
feeling, are
often powerful
incentives to
action.

the competitors about to appeal to my will, I may accept the highest." (*Ibid.*, p. 284.) And the same remark applies to prudential impulses or dispositions.

§ 9. Character and Conditions of Desires. Desires are to be distinguished from instinctive impulses by the fact that the consciousness of an end gratifying to the agent is present in the former case, while it is absent from the latter. "Desire," says Dewey, "is the impulse plus the feeling of satisfaction got in its realization. But impulse is always towards an end, and the satisfaction is because this end has been reached. Desire merely adds the knowledge or feeling of that line of conduct or of that object in which the impulse will fulfil itself. Desire is the impulse in its known objective connection. The pleasure is one element in it, and an element subordinate to the objective experience" (*Psychology*, p. 362.)

Analysis of Desire Desire, as a fact of our conscious life, involves the (I) Cognitive, (II) Emotive, and (III) Conative Elements. Let us consider these elements one by one :—

(I) *The Cognitive Elements* The consciousness of want, more or less distinct and definite, underlies every state of desire. If one, for example, be altogether self-satisfied, then there would be no room for desire in him. But generally we find that people, who are satisfied in some, are not satisfied in other, respects. Thus, a hermit or recluse, though not moved by worldly desires, may still be

Desires involve a consciousness of end, while instinctive impulses do not.

Analysis of Desire

(I) Cognitive Elements -
(1) Consciousness of want.

(2) Representation of an object expected to remove the want.

influenced by desires relating to the Future State. (2) There must also be the representation of an end or object which is believed to be capable of removing the want. The consciousness of the difference between the present unrealized condition of self and its realized condition, when the object of desire is attained, is essential to every desire "Desire," writes Dewey, "implies a consciousness which can distinguish between its actual state and a possible future state, and is aware of the means by which this future state can be brought into existence. It involves a permanent self which regards itself both as a present and future self, and acts with reference to their connection. It involves, in short, a self which can project or objectify itself"

[*Psychology*, p. 363.] (3) There must, moreover, be the consciousness of distance or interval between the present feeling of want and its anticipated removal by the attainment of the appropriate object.

If the consciousness of want and the representation of a suitable object be immediately followed by its attainment, then no room is left for desire. The incipient desire expires, the moment the want is removed.

(4) From these it is evident that there must be a clear and even acute consciousness of the difference between the representation and its presentative basis in order to the presence of desire. If one derives as much satisfaction from a representation as from the corresponding presentation, then desire is quenched the moment it rises. Thus, in the case of day-dreamers, there may be a want followed by a representation which, by reason of its

(3) Consciousness of interval between present want and its gratification.

(4) Consciousness of difference between representation and presentation.

vividness and intensity, satisfies it and thus leaves no room for the emergence of a desire. "If," as it is said, "wishes were horses, beggars would ride".

(II) *The Emotive Elements* Mere consciousness of want and the representation of an object expected to remove it are not adequate, however, to give rise to desire I may, for example, be conscious of my imperfection and be also aware of the circumstances which are likely to remove it ; but still I am not moved by any desire, so long as I do not experience pain at my shortcoming, which prompts me to seek relief in some form of activity constituting the very essence of desire. It should not, however, be inferred from this that pleasure is the real object of desire: pleasure is merely the accompaniment of restored equilibrium, an index to the fact that the object of desire is attained "This view," as Dewey observes, "overlooks two facts. First, the pleasure is a mere abstraction, the concrete existence is the object which gives the pleasure It is quite true that no object would be desired unless it were in that relation to self which we call feeling, that is, pleasure or happiness , but it is just as true that what is desired is not the pleasure, but the object which affords pleasure. The other fact which is overlooked is that we do not desire the object *because* it gives us pleasure ; but that it gives us pleasure because it satisfies the impulse which, in connection with the idea of the object, constitutes the desire The child desires the apple for he has the idea of the apple as satisfying his impulse. Only for this reason does he conceive it

(II) Emotive Elements

(1) Consciousness of pain due to want.

Pleasure is not the object of desire.

as pleasure-giving. Pleasure follows after the desire, rather than determines it." (*Ibid.*, pp. 361-362)

(2) The continuance of a desire is an additional source of pain.

It is apparent from the preceding remarks that desires are generally doubly painful: first, they are born of want, which is ordinarily more or less painful, and secondly, the continuance of a desire is itself a painful experience pressing for relief. It is the painful element which incites the active tendency to get the object on which desire fastens.

(III) Conative Elements

The active attitude on any occasion determines the rise of a desire, when suitable feeling and representation are present.

(III) *The Conative Elements* Inspite of the intellectual and emotional elements referred to above, there would be no desire if there be no active tendency ready to emerge at their call. I may have a consciousness of want and also a representation of what is likely to remove it, and yet I may not be moved by desire owing to the deficiency of psycho-physical energy or the conscious inability to attain the object of desire. Hence is it we find that the same feelings of want and the same representations do not always excite desires, or desires of the same intensity. "The impulse or striving to act," as Ward observes, "will be stronger, the greater the available energy, the fewer the present outlets, and, habits apart, the fresher the new opening for activity". (*Encyclo. Brit.*, XX, p 74.) When we are actively disposed, consciousness of want coupled with an appropriate representation excites desire urging us to action. "At times when there is a lack of present interests, or when these have begun to wane, or when there is positive pain, attention is ready to fasten on any new suggestion that calls

for more activity, requires a change of active attitude, or promises relief. Such spontaneous concentration of attention ensures greater vividness to the new idea, whatever it be, and to its belongings." (*Ibid*, p. 74.) As, however, we are conscious of a difference between a presentation and its representation, the representation called up cannot satisfy the craving which is ordinarily more vehement and absorbing than such a representation. Thus, as Ward points out, "The source of desire lies essentially in this excess of the active re-action above the intensity of the representation, (the one constituting the 'impulse,' the other the 'object' of desire, or the desideratum)"

From the above account, it is apparent that though the intellectual, emotional, and conative factors enter into desire, the last factor is really the predominant one, giving to desire its essentially active feature. (*Vide Chap V, § 1.*) And this activity is called forth, as indicated above, by the feeling of want rather than by the prospect of pleasure, as is usually supposed. "The best proof of this", writes Ward, "lies in certain habitual desires. Pleasures are diminished by repetition, whilst habits are strengthened by it, if the intensity of desire, therefore, were proportioned to the "pleasure value" of its gratification, the desire for renewed gratification should diminish as this pleasure grows less; but, if the present pain of restraint from action determines the intensity of desire, this should increase as the action becomes habitual. And observation seems to show that, unless

Desire is
essentially
active, as the
conative
element is
predominant.

Desire is
occasioned by
want and not
by a prospect
of pleasure.

Ward's
testimony.

prudence suggest the forcible suppression of belated desires or the active energies themselves fail, desires do in fact become more imperious, although less productive of positive pleasure, as time goes on." (*Ibid*, p 75.)

Desires mark
the
representative
stage of
conative
development

The most
representative
impulses are
the ideal ends
influencing us
to action

Stout.

It may be mentioned in this connection that desires represent the representative stage of conative development, the perceptual stage being represented by instinctive impulses and other motor adjustments in response to actual stimuli. The course of conative development follows the general course of mental development indicated in chapter VIII, § 5. As abstract thought represents the highest stage of intellectual development, so, in the sphere of conation, the highest springs of action are the rational or ideal ends referred to in the last section. As Stout observes, "With the development of ideational thought, higher forms of desire arise. The process of generalisation brings with it generalised conative tendencies. We aim at the fulfilment of rules of conduct instead of the production of this or that special result in this or that particular case. Ideal construction sets before us ends which have never been previously realised. These ends may be so complex that they can only be realised gradually by activities persistently renewed as opportunity allows. The writing of a book and sometimes the reading of it, may serve as an example. Sometimes the ideally constructed ends are such as the individual recognises to be unattainable in his own lifetime. He can only contribute his share towards bringing them to pass. Sometimes there is a doubt

whether they can be completely attained, or even a certainty that they cannot be completely attained. Ends of this last kind are the highest, and are generally called "ideals" (*Manual of Psychology*, pp. 600-601)

From the preceding account it is clear that the strength or intensity of a desire is conditioned by the following factors :—(1) The psycho-physical energy disposable at the time (2) The estimate of the pleasure as represented As Sully observes, "The strength of a desire is proportionate not to the intensity of the actual experience of pleasure but to its intensity as represented and estimated at the moment of desire" (*Psychology*, p. 391.) (3) Habit, by fixing a disposition towards a particular course of action, intensifies a desire in that direction, thereby weakening a desire in the opposite direction. Tests of the strength of desire, accordingly, are —(1) Great or prolonged exertion indicates a strong desire ; and (2) the amount of pain incurred, if the craving remains unsatisfied, indicates also the strength of a desire the greater the pain, the stronger the desire

Conditions of
the strength
of desire.

Tests of the
strength of
desire

Desire and Aversion It needs scarcely any mention that desire is illustrated in two aspects or forms, the positive and the negative ; the one is connected with pleasure, the other with pain. When we strive towards what gives us pleasure, the positive aspect is illustrated ; and this is called 'desire' in a limited or restricted sense of the term. When we strive away from what gives us pain, the negative aspect is illustrated ; this is called 'aversion.'

Aversion,
implying a
recoil from
pain, is but
the negative
form of desire.

Desire and aversion are illustrated both with regard to outward acts and with regard to mental activity or attention in the one case there is a tendency towards what is agreeable ; in the other case there is a recoil or shrinking back from what is painful In actual exercise these two aspects are often connected with each other desire for something implies an aversion to the opposite , when we are inclined to do an act, we evidently shrink back from the deterrents.

Affections, as
other.
regarding
impulses,
cannot
possibly be
derived from
Desires,
which are
self
regarding

Testimonies
of Hutch son,

Adam Smith,

§ 10 Affections Distinguished from Desires Having considered Desires, let us now turn our attention to Affections. Attempts have, no doubt, been made to deduce Affections from Desires, Sympathy from Self-love , but such attempts must necessarily fail, since no process of association can explain the genesis of pure regard for the well-being of others out of self-interest. This is evident from the fact that we cease to praise or admire an act of self-sacrifice when we find it to be but an aspect of self-seeking. Moreover, as Hutcheson points out, the anxiety of persons in their death-bed for their children and relatives precludes the supposition of self-regard in such cases and proves conclusively the disinterested character of our Affections "Sympathy," writes Adam Smith, "cannot, in any sense, be regarded as a selfish principle. When I sympathize with your sorrow or your indignation, it may be pretended, indeed, that my emotion is founded in self-love, because it arises from bringing your case home to myself, from putting myself

in your situation, and thence conceiving what I should feel in the like circumstances. But though sympathy is very properly said to arise from an imaginary change of situations with the person principally concerned, yet this imaginary change is not supposed to happen to me in my own person and character, but in that of the person with whom I sympathize. When I condole with you for the loss of your only son, in order to enter into your grief, I do not consider what I, a person of such a character and profession, should suffer, if I had a son, and if that son was unfortunately to die: but I consider what I should suffer if I was really you, and I not only change circumstances with you, but I change persons and characters. My grief, therefore, is entirely upon your account, and not in the least upon my own. It is not, therefore, in the least selfish. How can that be regarded as a selfish passion, which does not arise even from the imagination of anything that has befallen, or that relates to, myself, in my own proper person and character, but which is entirely occupied about what relates to you? A man may sympathize with a woman in child-bed, though it is impossible that he should conceive himself as suffering her pains in his own person and character. That whole account of human nature, however, which deduces all sentiments and affections from self-love, which has made so much noise in the world, but which, so far as I know, has never yet fully and distinctly explained, seems to me to have arisen from some confused mis-

and Hume.

apprehension of the system of sympathy." (*Moral Sentiments*, Part VII, Sec. 3, Chap. I.) And even sceptics are constrained to admit that Affections are quite disinterested. Hume, for example, observes, "Love is always followed by a desire of happiness to the person beloved, and an aversion to his misery, as hatred produces a desire of the misery, and an aversion to the happiness of the person hated. These opposite desires seem to be originally and primarily conjoined with the passions of love and hatred. It is a constitution of nature, of which we can give no further explanation" (*Dissertation on the Passions*, Sec. 3)

Desires and Affections are opposite in character and tendency.

(1) Desires imply want, while Affections fullness

(2) In the one case we seek personal interest, while in the other, the good of others.

(3) Desires are directed to all kinds of objects, while Affections, to persons

thus, Desires
actions
in

be
ad

Desires and Affections are opposite in character and tendency the former imply deficiency or want, while the latter, fullness or spontaneous outflow of the heart. In the case of the one we seek personal interest, while, in the other, the good of others. Desires are directed to all classes of objects, whether animate or inanimate, but Affections are directed to persons and, only in a subordinate degree, to lower animals. Similarity of constitution and reciprocity of feelings are the general conditions of all Affections, but these are not essential to the presence of Desires. Owing to these contrasts, Desires and Affections often come into conflict, so that, as the proverb goes, 'It is impossible to love and to be wise.' The conflict of these opposite tendencies is not infrequently heightened by gratification and experience, which generally incline us to seek what is agreeable instead of what is eligible. "Our appetites

and desires," says Channing, "carry with them a principle of growth or tendency to enlargement. They expand by indulgence, and, if not restrained, they fill and exhaust the soul, and hence are to be strictly watched over and denied. Nature has set bounds to the desires of the brute, but not to human desire, which partakes of the illimitableness of the soul to which it belongs. In brutes, for example, the animal appetites impel to a certain round of simple gratifications, beyond which they never pass. But man, having imagination and invention, is able by these noble faculties to whet his sensual desires indefinitely. He is able to form new combinations of animal pleasures, and to provoke appetite by stimulants. The East gives up its spices, and the South holds not back its vintage. Sea and land are rifled for luxuries. Whilst the animal finds its nourishment in a few plants, perhaps in a single blade, man's table groans under the spoils of all regions, and the consequence is, that in not a few cases the whole strength of the soul runs into appetite, just as some rich soil shoots up into poisonous weeds, and man, the rational creature of God, degenerates into the most thorough sensualist." (*Works*, II, p. 103)

Though, however, Desires and Affections are thus in their nature opposed, yet such is the harmony of our mental and moral constitution that, inspite of their natural contrariety, they become co-partners in the transactions of life and, by their mutual restraints and adjustments, serve to promote the true end of life. Desires are refined and

with
experience.

Channing.

Desires and Affections, though thus opposed, are harmoniously blended in our mental and moral constitution, promoting the best interests of the

individual and
of the
community.

enlarged by Affections, and Affections, too, become enriched and deepened by Desires. We can more effectively enter into the feelings of others and thus promote their well-being through our own satisfactions and disappointments. The natural instincts acquire a definite sense only through the teachings of experience, an important part of which is contributed by the Desires. The following lines of Pope, therefore, are not altogether untrue :—

"God loves from Whole to Parts . but human soul
Must rise from Individual to the Whole.
Self-love but serves the virtuous mind to wake,
As the small pebble stirs the peaceful lake ,
The centre mov'd, a circle straight succeeds,
Another still, and still another spreads ,
Friend, parent, neighbour first it will embrace ,
His country next ; and next all human race ;
Wide and more wide, th' o'erflowings of the mind
Take ev'ry creature in, of ev'ry kind ,
Earth smiles around, with boundless bounty blest,
And Heav'n beholds its image in his breast."

Desire is of
what is
attainable,
while Wish
may be idle

§ 11 Desire, Wish, Volition, and Attention
All these terms are at times used synonymously , but still there are differences among them. "The difference between wish and desire" says Kames, "seems to be, that a desire is directed to what is obtainable, and a wish may be directed to what is obtainable or not" Thus, in the case of Desire, a representation of the means necessary to its satisfaction is more or less distinctly present in the mind, thereby producing the conviction

that its object is attainable, while, in the case of Wish, no such representation or conviction is necessarily present. Hence we often describe wishes as "idle." The active tendency being the same, wishes are based more on feeling, while desires, on knowledge. And wishes being more emotional in character are generally more intense and vivid. Hence a wish has sometimes been described as "an effective desire." But though a wish may be intense or strong by reason of its feeling-tone, yet it cannot strictly be called "an effective desire." In respect of efficacy, desires stand higher than mere wishes.

Wish has at times been confounded with Will, because in respect of ardour or energy both resemble to a great extent, but the energy, in the one case, takes the form of mere idle craving, while, in the other, of choice or action. "The wishing of a thing," observes South, "is not properly the willing of it, it imports no more than an idle, unoperative complacency in, and desire of, the object." Thus, the active decision of Will is quite different from the prompting of an eager, but comparatively blind, Wish. "It might seem at first," writes Mackenzie, "that, if a wish is a dominant desire, it must always issue in will. But this is not the case. The reason is that a wish is often of an abstract character, directed towards some single element in a concrete event, without reference to the accompanying circumstances." (*Manual of Ethics*, p. 53) If, therefore, "a wish is often of an abstract character," overlooking "the accompanying circumstances,"

The
emotional
factor is

more
prominent in
Wish.

Desires are
more effective
than Wishes.

Though Wish
resembles
Will in
ardour, yet
the energy in
the one case
is only of the
character of
idle craving,
while in the
other, it is of
the form of
rational
choice.

then it is "dominant" in the sense of ardent or vehement, but not in the sense of 'effective' or issuing in action. In order that a wish may be 'effective,' it must take into account the concrete situation, so as to lead to volition or choice

"In idle wishes fools supinely stay;
Be there a will,—and wisdom finds a way."

(Crabb.)

Will is concerned with the control of impulses.

Volition is an exercise of Will.

Will, as we shall see in the next chapter, is concerned with the control of the desires or impulses, and Volition is but a concrete exercise of Will. "The process by which the concrete forms of volition are built up from the crude material of impulse" is thus indicated by Dewey.—"First there is awakened the state of mind known as *desire*, there is then a conflict of desires, this is concluded by the process of deliberation and *choice*, these result in the formation of an end of action which serves as the purpose or *motive* of action, this purpose is then, through the medium of its felt desirability, handed over, as it were, to the realm of the impulses, which realise it" (*Psychology*, p 360)

Attention, as we have seen (*Vide Chap. VI, § 4 and § 11*), is essentially an active process rendering distinct and clear what otherwise would at best be a vague and indefinite impression. It is by the regulation of attention that we strengthen or weaken a spring of action influencing the mind: when we withdraw our attention from an impulse, it is weakened, and when we concentrate our attention on an impulse, it is strengthened. Thus,

if a stronger spring of action finally determines action in any direction, it is because we by the direction of attention rendered the spring of activity strong. Attention is thus the first stage in the exercise of will it is the volitional intensification of cognitive energy with regard to a particular object, facilitating action in that direction. (*Vide* Chap. VI, § 11 and Chap. XVII, § 8)

§ 12. Origin and Development of Voluntary Action The essence of voluntary action lies in choice, the precise character of which we shall examine in the next chapter. The power of choice, however, develops gradually with the increase of experience. Choice presupposes materials upon which it is to be exercised, and such materials are furnished (1) partly by movements and (2) partly by springs of action. Though volition properly speaking refers to the mental act of choice, yet, as a matter of fact, such choice is closely connected with the choice of movements necessary for its efficacy. Constituted as we are, the relation of mind to body is too intimate to be divorced in the case of volition. In writing a letter or helping a friend, in reading books or in making experiments, in imparting instruction or in carrying on warfare, we have to choose from among springs of activity no less than from among movements of limbs or organs. Hence, in tracing the development of voluntary action, we must indicate the control which we gradually acquire over impulses and movements. And, as the course of development is rather from the outer to the inner,

Voluntary action, involving choice, implies the regulation of
(1) movements and
(2) springs of action

We shall confine our attention here to the development of voluntary movement and shall consider the development of the volitional regulation of springs of action in the next chapter. The elements of voluntary movement are furnished by spontaneous, reflex, and instinctive activities.

Views of Bain,
Spencer,

Sully,
and Ward

the complexity of movements appears earlier than the complexity of motives or springs of activity. We shall, accordingly, confine our attention to the development of voluntary movement in this chapter, and shall consider the development of the volitional regulation of motives or springs of action in the next, § 4

As voluntary movement presupposes movements which we have to choose from, these primitive movements are evidently supplied by the forms of activity described above as spontaneous, reflex, and instinctive. No doubt, some writers (*e.g.*, Bain) are disposed to hold that random or spontaneous movements alone supply these crude materials; some (*e.g.*, Spencer), that reflex movements supply such materials, and some, again, that instinctive movements—either (*a*) in the form of impulsive or appetitive movements (Sully) or (*b*) in the form of aversive movements (Ward)—supply these materials. Dr Ward, for example, writes—“Out of the irregular, often conflicting, movements which indirectly relieve pain some one may chance to remove the cause of it altogether. Upon this movement, the last of a tentative series, attention, released from the pain, is concentrated, and in this way the evil and the remedy become so far associated that on a recurrence of the former the many diffused movements become less, and the one purposive movement more, pronounced, the one effectual way is at length established and the others, which were but palliatives, disappear” (*Encyclo. Brit.*, XX, p:73). As, however, all these

movements appear very early in life and almost simultaneously (*e.g.*, crying, sucking, winking, and moving the limbs in the case of new-born babes), it would seem that all of them supply materials for the development of voluntary movement. With the repetition and variation of these movements the stock of materials increases. And the principles which help the evolution of voluntary action are chiefly (1) the laws of the feelings, (2) the law of self-conservation, and (3) the laws of association. When on any occasion a particular movement accidentally performed produces an agreeable result, vital energy is usually heightened, which, in the language of Bain, goes "a good way to cement the connection between the action and the result." If, again, in any case a painful experience ensues upon the performance of an act, then also by the laws of the feelings attention is powerfully drawn to the connection between the act and its consequence. The association thus begun is strengthened by repetition and extended to other cases by the analogy of feeling or suggestive influence of similarity, so that subsequently when a pleasurable or painful feeling is experienced or anticipated the particular movement associated with it by the contiguous bond would readily be suggested to the mind. When a child, for example, accidentally scratches an itching surface, then the agreeable experience becomes associated with that definite movement, which is continued for the sake of the pleasure or relief from pain. Subsequently, when the child again experiences a similar itching

The laws helping the development of voluntary action are those of (1) the feelings, (2) self-conservation, and (3) association.

An illustra-
tion.

sensation, it is led by contiguity to repeat the same movement for the sake of relief, and thus a voluntary movement is induced. As with growing years a greater practical interest is felt in the means than in the end, attention would more powerfully be drawn, by the law of transference, to the movement whenever an occasion arises for its performance. And, as by this time a certain stock of motor ideas would be formed, ideo-motor actions also would at times be induced.

The above factors indicate merely the rudimentary beginning of voluntary movement, which is gradually improved and perfected by exercise. The development of voluntary action implies, as we have already mentioned, (I) the development of desires or springs of action and (II) the development of the motor factor. We shall, however, confine our attention here to the second (II) of these two factors and shall take up the first (I) in the next chapter.

The development of the motor factor involves (1) separation and (2) combination of prior movements. Such separation or combination is suggested by experience and perfected by repetition and modification. (1) The several fingers, for example, though originally moved together, may subsequently be moved in different directions (or some of them only may be moved to the exclusion of the rest) to meet new circumstances (*e.g.*, playing the piano). (2) Combination may be illustrated either by reference to (*a*) simultaneity or (*b*) by reference to successive movements. The first (*a*) is illustra-

development
of the
motor factor
involves (1)
separation
and (2)
combination,

ted in speaking and rendering it more effective by means of suitable gestures, and the second (*b*), in dressing oneself or taking food.

The separation and combination alluded to above are gradually perfected; and these proceed from the presentative to the representative, from the sense-conditioned to the sense-detached type of movement. The stages of the development may be indicated thus —

(1) *Imitative movement*. The first stage is represented by imitative movement. Here the sight of a movement suggests its performance; and the child is led to perform the movement either with some clear purpose or end in view, or without such end. Imitative movement is often of the ideo-motor type, described above.

(2) A movement determined by verbal suggestion, or *the word of command*. This is illustrated when a child performs a movement when required to do so. Here the action stands, as it were, midway between the sense-conditioned and the sense-detached type. It is not suggested by the sight of a movement (as in the case of imitation), but by an arbitrary symbol (namely, the word of command), and thus, in a sense, it is more removed from the sense-conditioned type represented by imitative movement. That the word of command leads to the actual performance of a movement is readily explained by the fact that the command suggests motor ideas which, when sufficiently vivid and stable, tend to realize themselves in actual movement.

which are
perfected by
experience

The course
of this de-
velopment
is—

(1) imitative
movement,

(2) movement
due to verbal
suggestion or
word of
command,

and (3) internal origination of movement

(3) *Internal origination of movement.* This represents the sense-detached type of action it is internally or ideationally conditioned. It is no longer of the reflex type represented by (1) and (2), which are prompted by an external stimulus (the visual image of movement in the one case and the word of command in the other), it owes its origin to an idea or representation within the mind of the agent himself. Now the child may be imagined as able to move his limb from the mere wish to do so. And it is apparent that the range and variety of voluntary movement are considerably enlarged by such a capability.

When voluntary movement develops in this way, its sphere would be widened by the multiplication of experience, the development of the power of representation, and the exercise of constructive imagination to meet new circumstances. In such a condition, a voluntary action would involve the following factors—(1) The presentation of an object or circumstance suggesting by contiguity the representation of some desirable end (2) This representation with the connected feeling occasions desire (3) The desire, in its turn, suggests by association (contiguity) the appropriate movement or series of movements leading to its fulfilment (4) The active consciousness accompanying the performance of the movement and the experience of the result or the end achieved. The last factor is rather the outcome or result of voluntary action than a part of it. It needs scarcely any mention here that when any voluntary action becomes

Analysis of voluntary action

habitual, even the motor idea sinks into sub-consciousness and the movement is undertaken spontaneously as it were, on the presentation of appropriate circumstances.

§ 13. Character and Conditions of Habit. Routine. The term 'Habit,' as mentioned before, is used (1) in a wide sense as implying all the result of past experience, and (2) in a narrow sense, as indicating the rigid fixing of ideas, feelings, or activities in definite directions as the result of previous repeated and uniform experience. In the latter sense, habit is opposed to development habit is the conservative tendency—the tendency to move in a groove, as it were, development, on the other hand, is a tendency towards modification and variation leading to new intellectual, emotional, and volitional exercises But habit understood in the wider sense is an integral part of development There can be no progress, no march onwards, without the elements of past experience .the seemingly new is but a modification of the old ('Vide Chap. VIII, § 2)

In this chapter we shall examine 'Habit' in the narrow sense, as the outcome of repeated voluntary acts in a certain direction Habit, understood in this sense, is to be distinguished from instinct by the fact that the former is acquired by repeated, and uniform practice, while the latter is original In spite of these points of difference, they have much in common: (a) both instinct and habit are uniform or mechanical in character, (b) both are evoked by appropriate circumstances without any

Habit expedites and renders sub conscious the performance of actions acquired by volition.
'Habit' is used in

(1) a wide and
(2) a narrow sense

Relation of Habit to Development

Habit is considered here in the narrow sense

Habit and Instinct compared

Habitual movements are called 'secondarily automatic'

discrimination, (c) both are preceded by a vague consciousness of want. But habit, like the appetites, may give rise to periodic wants, as in the case of routine work. The uniform or mechanical character of habit has earned for it the epithet 'secondarily-automatic.' Hartley, Bain, and others describe habitual movements as 'secondarily-automatic,' as they closely resemble the congenital reflexes or 'primarily automatic' movements - a certain circumstance or stimulus uniformly evoking a certain movement.

The physiological conditions of habit are the modifications of sensory and motor centres and the establishment of definite lines of nervous discharge between them

The physiological conditions of habit seem to be that when certain sensory and motor centres are repeatedly exercised together or in close succession, definite lines of discharge are established between them, which subsequently dispense with the necessity of any intervention of the higher cortical centres. Hence habitual movements have sometimes been called cerebro-reflex. When a nervous excitation follows a definite course in the nervous system, it leaves behind it a trace which renders the same course easier for all subsequent excitations, and repetition and uniformity have the effect of strengthening the line of discharge or deepening the trace. In this way when a habit is firmly established attention is released, so that the appropriate action is at once performed when the occasion arises. A physiological disposition takes the place of volition or conscious determination.

The conditions of the strength of a habit are :

- (1) The amount of time and attention bestowed on a particular movement or a combination of move-

ments so as to make it easy and prompt. (2) The frequency with which a definite stimulus has been followed by a definite movement. (3) The invariable and uniform character of past responses.

The marks or tests of the strength of a habit are the following — (1) *Easy-performance of action* : the greater the ease, the stronger the habit and, consequently, the greater the difficulty of subsequently modifying and altering it (2) *The promptitude or swiftness of response* is an index to the strength of a habit : the stronger a habit, the more quickly is responsive movement performed (3) *Precision or speciality of response* When a habit is firmly fixed, the appropriate or definite movement is immediately performed when the occasion arises. (4) *The uniformity or unfailingness of response* indicates also an inveterate habit. The more uniformly we are led to perform an action on the occurrence of definite circumstances, the stronger seems to be the habit We can thus estimate the strength of the habit of a veteran soldier who drops his meal at the word 'Attention' shouted by a practical joker

✓ Habit, though the outcome of voluntary action, tends to become sub-conscious and automatic as it is perfected. If, therefore, volition is free and modifiable, habit is rigid and uniform in character. Habit is illustrated either with regard to detached acts or with regard to a series of them. The latter constitutes what we call *Routine*. Many of our habits are of this character. Our day's work may, to a great extent, be traced to the routine-perform-

Tests of the
strength of
Habit.

Habit begets
a 'second
nature,' due
to routine-
work.

ance of several movements or acts, one after the other,—for example, rising in the morning, dressing ourselves, taking a morning walk, preparing our lesson, going to college, etc. In the case of a man of routine, the habits assume the character of appetites—there being periodic want with a craving for satisfaction. For example, when the time comes (say, at 11 A.M.), we are disposed to go to college, otherwise we feel uneasy.

§ 14 Exercises

- 1 Give a general definition of conative phenomena, and show their relation to the phenomena of feeling and cognition. In what two different ways does conation operate?
- 2 Distinguish between Appetite and Desire. State the conditions of the strength of Desire.
- 3 Distinguish Desire, Motive, and Intention.
- 4 Show how pleasure and pain influence the Will. Is the theory that pleasure and pain are the only motives tenable? Base your answer on a strictly psychological account of Desire.
- 5 Exhibit the different views held as to the relation of Desire to the Self and to Volition.
- 6 Distinguish between the germs of voluntary action and voluntary action proper.
- 7 Give an account of the chief classes of Primitive Movements.
- 8 Distinguish Random, Reflex, and Instinctive Movements. How are Instincts related to Heredity?
- 9 Indicate the character and forms of Emotional Expression and Ideo motor Action.
- 10 Distinguish between (1) Impulses and Emotions and (2) Desires and Affections.
- 11 Analyse Desire and point out the conditions of its intensity.

12 Classify the Springs of Action and indicate their relation to Volition

13 Distinguish Desire, Wish, and Volition

14 Trace the development of Voluntary Action What are the germs of Voluntary Activity?

15. Explain the character and conditions of Habit How is it related to Voluntary Action?

16 Give a clear exposition of Instinct What do you understand by the purposiveness of Instinct? Distinguish between biological and psychological purposiveness, and explain the relation between the two in the development of volitional power

17 Give a psychological account of Impulse, distinguishing it from Emotion and Will

18 Discuss the relation of Impulse to Desire, and of Desire to Feeling

19 Exhibit the nature and operation of (a) Instinct and (b) Habit

20 Trace the psychological history of volitional movement, distinguishing it from other types of movement Exhibit the course of development from thought of action to action

21. Analyse the state of Desire Show (a) that Desire underlies and precedes Volition, and (b) that the transition from Desire to Volition requires an additional factor

22 Discuss as regards their relation to one another, and to practical consciousness, Appetite, Passion, Desire, Affection, and Will.

23 Estimate some of the attempts to make Desire the fundamental fact in Volition

24 Characterize the various forms of action, discussing more fully imitative and expressive movements

25 Distinguish, from a psychological point of view, Reflex, Instinctive, and Voluntary Action Do you regard Voluntary Action as emerging out of Reflex Action, or Reflex Action as lapsed Voluntary Action? Give reasons for your answer

26 Investigate the nature of Habit on its mental and its physical side, and indicate what you regard as the range of this principle in the region of voluntary action and of mental life as a whole

27 Under what conditions do voluntary acts tend to become relatively unconscious? Is this fact capable of being explained by any general laws of nervous action?

28 Explain the proposition that all moral training consists in the formation of certain habits

29 "Practical habits," says Butler, "are formed and strengthened by repeated acts, and passive impressions grow weaker by being repeated upon us" Explain how this comes to pass, and bring out the ethical significance of the fact

30 Is the distinction between Instinct and Reason one of kind or degree?

31 Examine the different explanations that have been given of those actions of human beings which are apparently unconscious and yet apparently intelligent, and consider the relation of these to conscious actions

32 What do you understand by Instinct and by Habit? and how do you conceive them to be related to one another? Examine the following "Voluntary Action has both its origin and its termination in Instinctive Action"

33 How far may such actions as talking and walking be called instinctive? How would you explain any instinctive character which you may attribute to them?

34 Expound your views concerning Instinct, and discuss the connexion between Instinct and Imitation

35 Some psychologists have ranked imitation as an original mental power Discuss the question, and distinguish between mimicking and imitation.

36 Name the conditions on which the varying degrees of Habit depend How does Habit modify Instinct?

CHAPTER XVII.

WILL

§ 1 Nature of Will. In determining the character of Will we should not lose sight of the unity of our mental constitution. The different faculties are not detached entities but different expressions of one and the same mind, whose nature is pre-eminently discriminative. (*Vide Chap V, § 4*) Thus, Will, which is but its active aspect, is essentially rational in character, so that Schopenhauer's extension of the term to cover every form of effort or energy is unjustifiable. (*Vide Elements of Morals, Chap X, § 12*) Will, as pointed out by Aristotle and Kant, is but Reason acting, energizing, or choosing (*Ibid, Chap. IX, § 20* and *Chap XII, § 5*) Hence an exercise of Will always involves choice and discrimination. When two or more impulses are present before the mind, it compares them and then decides to act in a certain direction.

All objects in the universe are charged with forces and so endowed with capacity for work. Thus, we find causality ruling the universe. But, causality, as Dr. Ward points out, is revealed in either of two ways - (1) a cause may be 'blind,' or (2) it may be 'originative' (1) The former is illustrated when it is constrained to act in a certain direction by the invariable laws of nature ; (2) while the latter is exemplified in the production of an effect according to its own determination. The sun, for example, is a cause of light and heat ; but

Will is
essentially
rational

It involves
choice

Causality
pervades the
universe

Two forms of
cause

(1) 'Blind'
cause, illus-
trated in
natural
causality

(2) 'Originative'
cause,
illustrated in
human choice

it is a blind cause, for its causality is exercised according to the inflexible laws of nature. in such a case "The proximate cause has its own proper effect marked out for it by strictest and most absolute necessity" (Ward, *Philosophy of Theism*, Vol I, p 378) But the mind, in resisting an impulse, exercises origenerative causality, for it freely employs its power in any direction it likes. The mind, however, may be both a blind and origenerative cause. The rise of desires and inclinations, for example, is due to the blind causality of the mind, since their rise is determined by definite laws under certain circumstances. As Ward observes, "My soul possesses certain forces and properties, my body possesses certain forces and properties, and on the occurrence of certain given circumstances, on a certain given occasion, the two substances produce, by their joint causative agency, that phenomenon of the former which is called, e.g., an 'emotion'" (*Ibid*, p 379) What we call the passivity of mind involves also some activity, which is evoked by external stimuli. Without capacity there can be no experience. Now, of the two forms of cause, the origenerative one is the more important and fundamental, for 'blind' cause is determined in its operation by laws external to itself. We may go even a little farther and maintain that the origenerative cause is the only causality in the proper sense of the term, for it, being free and undetermined, is the ultimate source of all activity. The activity which 'blind' causes exercise is derived from 'origenerative'

The mind is a blind cause as far as its susceptibility is concerned, and it is an origenerative cause, so far as free choice is concerned

Dr Ward's testimony

The origenerative cause is properly speaking the cause,

cause, which settles also the inflexible laws of their operation. The originative cause being free and discriminative is rational, and it is the characteristic of the First Cause of the universe as well as of human personality Referring to the mind's resistance to an impulse, Waid observes, "My soul in producing a psychical phenomenon of this kind, acts as an 'originative' cause it acts in virtue of a power (which it is thereby shown, within certain limits, to possess) of *choosing an alternative*. As a blind cause, it is co-operating with my body in producing its own preponderating spontaneous impulse, and, at the same moment, as an originative cause, it is effecting its own free *resistance* to that impulse." (*Ibid*, p. 381.) This originative cause is what we call Will. Will is the distinguishing feature of rational creatures and is the ground of their responsibility. Milton thus expresses the importance of Will in responsible beings, whose glory lies in their ability to rise or fall. Raphæl, addressing Adam, says —

"God made thee perfect, not immutable,
And good he made thee, but to persevere
He left it in thy power, ordained thy will,
By nature free, not overruled by fate
Inextricable, or strict necessity
Our voluntary service he requires,
Not our necessitated, such with him
Finds no acceptance, nor can find, for how
Can hearts, not free, be tried whether they serve
Willing or no, who will but what they must
By destiny, and can no other choose?"

and is essentially free and rational

It is the distinctive feature of God and man

The mind, as a blind cause, is the source of impulses, and, as an originative cause, it is the parent of choice

The originative cause is Will, which is the ground of responsibility in man.

Determinists,

however,

ignore the distinction between 'blind' and 'originative' cause, as every event, according to them, is determined by necessary conditions, and nothing is undetermined or free

Mill

This view is usually associated with phenomenism, which leaves no room for energy or originative cause.

The above view of Will, however, is not accepted by all writers. The distinction between 'blind' and 'originative' cause is regarded by some as unmeaning, since, according to them, all activity, external or internal, is necessarily determined by conditions. Nothing in this universe, it is urged, is undetermined and free, and so what we call Will is constrained in its sphere of activity by factors or conditions external to itself. "A volition," writes Mill, "is a moral effect, which follows the corresponding moral causes as certainly and invariably as physical effects follow their physical causes. Whether it *must* do so, I acknowledge myself to be entirely ignorant, be the phenomenon moral or physical, and I condemn, accordingly, the word Necessity as applied to either case. All I know is, that it always *does*" (*Examination of Hamilton*, p. 562.) We shall examine this position in section 8. But we may mention here that the school of Mill is naturally averse to the admission of a necessary connection between cause and effect. Such an admission would imply a consciousness of the expenditure of energy which serves to connect cause with effect. The empiricists, however, leave no room for anything else than phenomena in their systems, and so they cannot allow the presence of a volitional energy, which serves to produce effects and reveals the necessary connection between the originating cause and its issue. Thus, they recognise merely phenomenal succession as presented to us and so can speak only of a consequent as *actually* following an antecedent but not

that it '*must*' follow. To what extent this phenomenal theory of causation is correct we shall examine in section 7.

We shall
examine this
view in § 7

§ 2. Conditions of the Exercise of Will. We have seen that Will is essentially rational in character. An exercise of Will thus always involves discrimination. The following are the conditions of such an exercise.—

(1) The presentation of circumstances suited to call forth desires or impulses which urge us to activity. There must be an occasion for an exercise of Will, and such an occasion is furnished by objects, relations, and changes in the sphere of our activity, which prompt us to take this course or that.

(1) Occasion
or
opportunity.

(2) The rise of desires or impulses in the mind which prompt us to act in certain directions. Though by dwelling on certain circumstances we may favour the rise of certain desires in our minds, yet generally these arise unsolicited, simply by natural laws. We are, accordingly, not responsible for the mere rise or decline of an impulse, but we are responsible even for its continuance. Thus, the spontaneous rise of propensities, which we call bad, does not vitiate the mind, though their continuance does.

(2) The
presence
of impulses

We are not
responsible
for the mere
rise of
impulses or
desires in our
minds,
though we are
responsible
for even the
continuance
of these
impulses or
desires

"Evil into the mind of god or man
May come and go, so unapproved, and leave
No spot or blame behind."

(Milton)

The rise of such a desire indicates, no doubt, that a nature is corrupt and that the character is

not properly developed, but its mere initial presence in the mind does not bring it any fresh guilt. The impulses are but the materials from among which a choice is to be made

(3) Conflict among impulses affording room for comparison and choice

(3) There must be a conflict of impulses in order that the mind may be called upon to decide between the claims of the rival solicitations. If there be no conflict, the mind is led to act in the direction of an all-absorbing impulse, which at the time has no rival to dispute its sway. Of course, the mind may pause and put a check upon the career of an impulse and thus start an alternative course of activity. In such a case an alternative is apparently supplied by the agency of the mind in reference to certain circumstances, affording an occasion for the intervention of the Will. But even here, if we examine with care, we discover that the alternatives were *suggested* to the mind at the outset which led it to pause and reflect. Thus, without alternative possibilities or rival impulses, there can be no room for an exercise of Will.

(4) Deliberation, or active comparison of conflicting impulses

The initial stage of volition is attention, which strengthens or weakens an impulse by on

(4) The comparison of the impulses with regard to their relative intensities or worth in order to fix upon a definite course of action. Such comparison involves an exercise of attention, which is the beginning of an exercise of Will. Whenever we direct our attention to an impulse, we intensify its force, and the withdrawal of attention from it likewise implies its decline. So that, if subsequently we yield to the stronger impulse, it is because we, by the direction of attention, gave the motive its strength.

(5) The act of choice which fixes upon a definite course of action after the due' comparison of the rival claims of conflicting impulses. The difference between this condition and the last is intelligible by reference to the transition from reflex to voluntary attention and the development of definite preference out of rudimentary discrimination. In reflex attention our notice is attracted by a fact which for the time being exercises an influence on our mind. Thus, a comparison may be *started*, but never *continued*, by reflex attention. The continuance of a comparison, or what we call active comparison, involves the intervention of Will, which thus begins to exercise its influence upon its materials by either strengthening or weakening their force. And if we subsequently choose that which seems to be stronger, it is because we voluntarily developed its strength by dwelling on concomitant circumstances. Thus, volitional exercise is illustrated either in the fully developed or mature form of choice or in the rudimentary form of attentive intensification of impulses

(5) Choice or determination to act in a definite direction.

If, finally, the stronger motive determines a course of action, it is because the Will, in the form of attention, gave the motive its strength

§ 3. Motive, End, and Intention. The difficulty of ascertaining the true character of Will is connected partly at least with the ambiguity of the term Motive, which is taken to be its determining condition. The term 'Motive' has been used in two very different senses —

(1) It has been used in the sense of feeling which urges us to action Hoffding, for example, defines motive as "the feeling excited by the idea of the end." (*Psychology*, Eng Translation,

Ambiguous use of the term 'Motive.'

(1) It is used by some in the sense of 'feeling' which incites us to action Hoffding,

Locke,

p 324) Locke similarly writes, "The motive for continuing in the same state or action is only the present satisfaction in it, the motive to change is always some uneasiness · nothing setting us upon the change of state, or upon any new action, but some uneasiness This is the great motive that works on the mind to put it upon action, which for shortness' sake we will call 'determining of the will.'" (*Essay*, Book II, Chap XXI, § 29) Bentham, likewise, maintains that "A motive is substantially nothing more than pleasure or pain, operating in a certain manner." (*Principles of Morals and Legislation*, p 102.) "A motive," says Mill, "being a desire or aversion, is proportional to the pleasantness, as conceived by us, of the thing desired, or the painfulness of the thing shunned." (*Examination of Hamilton*, p. 589) So Dr Bain "Various motives—present or prospective pleasures and pains—concur in urging us to act" (*Emotions and Will*, p 550)

Bentham,

Mill,

Bain.

(2) The term has also been used in the sense of *an end** *fixed upon* for the execution of an act.

* The term end ordinarily signifies the pre-conceived idea of a result to be attained and should not be confounded with the end-state of conative activity (*Vide* Chap XVI, § 1) Such a confusion is often present in the writings of hedonists and utilitarians and at times even in the writings of some idealists who identify the end state of a cosmic or thought process, objectively conceived, with the subjectively conceived end of the individual A distinction is drawn between a proximate or immediate end and a remote or ultimate end Thus, a merchant's proximate end is the successful transaction of business, while his remote end is gain or profit, e.g., to become rich His end-state, of course, is vital satisfaction. A project ordinarily stands for a remote end conceived, but not chosen, while purpose stands for such an end chosen, but not yet attained Plan, on the other hand, is the means adopted for the realization of a purpose Motive is an end chosen which is either attained by means of an action or not yet attained (e.g., continues as purpose).

Green, for example, defines motive as "An idea of the end chosen or selected. Green," which a self-conscious subject presents to itself, and which it strives and tends to realise." (*Preliminary to Ethics*, p 93) D'Arcy also speaks of "The idea of the end as the motive of action" (*Short Study of Ethics*, p. 90), and Mackenzie says, "The motive, that which induces us to act, is the thought of a desirable end." (*Manual of Ethics*, p 64) Muirhead similarly defines motive as "The idea of the object which, through congruity with the character of the self, moves the will." (*Elements of Ethics*, p 60)

Both these uses are sanctioned by literature, and the popular use is still more vague. Feeling as such can never prompt us to activity. Feeling as it rises in intensity rather paralyses than moves us. When a feeling is associated with an idea or representation at a moment when we are actively disposed, it begets desire, which moves us to action. (*Vide Chap. XVI, § 9*) But at one and the same moment we may be influenced by several desires, all of which we do not regard as motives. Moreover, that feeling or desire is distinct from motive is apparent from the fact that we determine the moral quality in any case by the latter and never by the former /Nay, if an individual can prove that he has committed an offence under grave or sudden provocation, that would serve as an extenuating circumstance. While the intensity of a motive for crime heightens its criminality, the intensity of a desire or a feeling, occasioned by circumstances, lessens it In proportion as inclination becomes

masterful, an action is withdrawn from the moral sphere and regarded simply as a natural phenomenon. The fact is that, whenever we refer to the motive of an act, we proceed from the act to something in the character of the agent, which explains this and other similar acts. The motive, accordingly, is not a passing feeling or desire, but a resolve or elected end of an action. As Ward says, "'Desire' is one thing, 'resolve' another, and men not unfrequently both 'resolve' and act, in *opposition* to their 'desire'" (*Philosophy of Theism*, Vol I, p. 289) He thus explains the use of the term motive "We used the word 'motive' in a different sense from Dr. Bain. What Dr Bain calls a 'motive' we called an 'attraction.' According to our use of terms, to ask what is my 'motive' for some action, is to ask what is that end which I have resolved to pursue, and for the sake of which I resolve on the performance of that action. But if a *Determinist* asks me what is my 'motive' for some action, he means to ask me what is the attraction which allures (and infallibly determines) me to do what I do. By 'motive', he means an 'attraction', but by 'motive' we mean, not a certain *attraction*, or a certain *solicitation*, but a certain governing *resolve*" (*Ibid*, p. 339, footnote) 'Motive' is thus the end which we fix upon on any occasion to do an act, and the moral quality of an act depends on the worth of the motive or resolve. When we say that the moral worth of an action is determined by its motive, we mean that it is determined by the impulse

Motive is a
resolve

Ward

selected and not by the impulse rejected. Each impulse is relative to an end, explicitly or implicitly operating in the mind. It may be influenced by various ends ; but the one selected on any occasion becomes the motive of action. A motive is called good or bad because it expresses the character of the agent through his choice. "Action", as Mr. Stocks observes, "is character in activity and motive is that side of character from which a given act is more particularly thought to proceed." (*Mind*, January, 1911, p. 65.)

Motive, then, implies the end with which the self identifies itself for achieving a result—subjective or objective. It is the selected end charged with feeling and impelling an individual to a definite course of action. There is thus great difference between motive and result, the one is the end aimed at, the other is the issue accomplished ; the one is ideal, while the other is actual. And this difference between motive as a subjective condition prior to action, and result, as an objective event caused by it, stands, in whatever sense we may take the term 'motive.' Referring to the ambiguity of this term, Fowler writes, "Sometimes it is employed to signify the end or object which the agent has in view, sometimes the appetite, desire, affection, or moral habitude which prompts him to seek that end. Thus we say, almost indifferently, that a man's motive is selfishness, or to aggrandise himself, or, more specifically, to make money or reputation ; that it is compassion, or to relieve misery, or to alleviate the sufferings of

A motive is called good or bad, as reflecting the character of the agent.
Stocks.

Motive is thus the end with which the self identifies itself.

Difference between motive and result

Fowler.

'Conflict of motives' really means conflict of impulses or desires

Dewey

some particular person, that it is ambition, or to obtain some place or honour. But, in either sense of the word, the distinction between motives and results seems to be the same" (*Principles of Morals*, II, p. 195) It may, however, be mentioned in this connection, that the expression 'conflict of motives' is intelligible only when we take 'motives' in the sense of impelling forces or tendencies to action and not in the sense of ends selected. We may, no doubt, be pulled in hostile directions by two conflicting impulses, but whenever one of them is selected as the motive of action, the conflict ends. Dewey very properly observes, "A desire when chosen becomes a *motive*. We often speak of a conflict of motives, but in strict use this is improper. There is a conflict of desires, but the formation of a motive is the cessation of the conflict by setting the self upon some one motive. A motive is sometimes spoken of as the strongest desire. This may be either false or a mere truism. It is not true if it is meant to imply that the desires carry on a conflict with each other till all but the strongest is exhausted, and this survives by sheer preponderance of force. No such conflict goes on. The conflict of desires is the conflict of self with self. The conflict of desires ends when the self reconciles or concludes this internal struggle by setting itself in some one direction, by choosing to realize itself in the line laid down by some one desire. This desire is then the strongest, because the whole force of the self is thrown into it. This desire, in short, is nothing

but the self having formed a definite purpose. It is now a motive or spring to action ; it is the end of action. The action is only the reaching of this end, the execution of the motive. It gives us no new information to say that the act is determined by the motive, for the motive is the act which the self chooses to perform." (*Psychology*, pp 366-367)

The term *Intention* has come into prominence in this connection owing to the advocacy of the utilitarian writers that the moral quality of an act is really determined by it and not by the motive. The difference between motive and intention, as drawn by them, is that in the one case we merely consider that *for the sake of which* an act is done, while in the other, all the contemplated results—both that *for the sake of which* and that *in spite of which* it is done. The one indicates merely the emotional condition, "the conscious impulse to action, whether desire or aversion" (*Sidgwick*), while the other stands for the entire contemplated effects. Intention thus includes both the positive and negative elements involved in choice, while motive stands only for the former* "The morality of the action," says Mill, "depends entirely upon the intention—that is, upon what the agent *wills to do*. But the motive, that is, the feeling which makes him will so to do, if it makes no difference in the act, makes none in the morality · though it makes

The utilitarian distinction of motive and intention

Motive is taken to be an inducement to action, while intention covers the deterrent considerations as well

The morality of an act is said to be determined by the intention

Mill

* As the negative elements involved in choice often operate in a sub conscious form, the residual factor of intention ordinarily refers rather to what is necessarily involved than to what is explicitly chosen.

a great difference in our moral estimation of the agent, especially if it indicates a good or a bad habitual *disposition*—a bent of character from which useful, or from which hurtful actions are likely to arise" (*Utilitarianism*, p 27, foot-note) When, for example, a thief steals, his motive is love of gain, but his intention includes also injury to others in respect of their property. Hence his act is wrong. The motive is thus included in the intention and may be characterized as the "*ultimate intention*" it refers to the ultimate consequences for which an act is done—while intention refers also to the consequences connected with the means. The motive of a guardian in punishing his ward is his improvement, but intention here covers also the infliction of pain connected with punishment.

'Intention,' referring to the entire consequences of an act, is thus wider than 'motive', which refers to the ultimate consequences alone

The above distinction is closely connected with the controversy of the true object of moral judgment and the question of free will and necessity

The above distinction between motive and intention is closely connected with the fundamental moral controversy, whether the moral quality is determined by motive or consequences. It is, however, a patent psychological fact, recognised even by hedonists, that motive is an essential factor in the determination of the moral quality in any case (*Vide Elements of Morals*, Chap V, § 4 and Chap VI, § 1). Mill, for example, himself admits that the motive "makes a great difference in our moral estimation of the agent." The two senses in which the term 'motive' has been used are connected with the doctrines of Free-will and Necessity. The necessitarians hold that 'circumstances give rise to feeling, which, in the shape of motive, determines

an exercise of will, while the libertarians contend that the rational soul freely chooses a course of action by reference to alternative possibilities. Without entering into this question here, which we shall discuss in section 8, we may only observe that, according to the one view, will is, as it were, pushed from behind, while according to the other, it is drawn on by what lies before. The essentially prospective character of volition is admitted even by necessarian writers. The same act, occasioned by the same circumstances and urged by the same feelings, may vary in moral character according to variation in motive or elected end of action. A philanthropist and a merchant, for example, may both be moved by pleasurable feelings, but their acts widely differ in moral quality owing to difference in their motives.

The essentially prospective character of will or volition is often missed by determinists.

Moral quality is evidently determined by motive or end

"T is the temptation of the devil,
That makes all human actions evil ;
For saints may do the same thing by
The spirit, in sincerity,
Which other men are tempted to,
And at the devil's instance do
And yet the actions be contrary,
Just as the saints and wicked vary."

(But. *Hud.*)

§ 4. Complex Action. Complex action, as we have seen, involves (I) Complexity of the impulses or desires and (II) Complexity of the movements connected with its execution. The latter (II) we have already discussed in § 12 of the last chapter. Let us now study the former.

Complexity of Action is due either to (I) complexity of impulses or to (II) complexity of movements As we have already considered the latter, we shall now examine the former

In adult life, acts are usually complex owing to the multiplication of springs of action which often act together.

The development of motive ideas introduces new sources of complexity

(I) In adult life our voluntary acts are mostly complex, not merely because they involve a series of movements, but also because the impulses or desires influencing action are more numerous and diverse, co-operant or antagonistic. With the advance of years, the dispositions and desires also become more numerous owing to (1) intellectual development and (2) the development of feeling. The development of intelligence means wider and better knowledge of the several consequences, proximate and remote, of our acts and their occasions. With the expansion of ideas, new desires come into existence and the old ones are often modified. (2) With the growth of feeling new desires also arise in the mind—sense-feelings and the different forms of emotion gradually differentiate themselves, affording diverse pleasures and occasioning different forms of pain. Thus, new desires or impulses to action prompt one in boyhood and youth besides those that are present in infancy. Not only is the growth of concrete desires or impulses thus enriched by the development of intelligence and feeling, but cravings of a general character in the form of what are called *motive ideas* also come into existence. With the development of thought, ideas of knowledge, health, wealth, honour, etc., are formed, and when these are backed up by feelings, they become powerful incentives to action. The development of motive ideas is closely connected with the development of the notion of self and its needs. A boy influenced by a motive idea may sacrifice some temporary gratification for the more

durable happiness promoted by it. When a motive idea is adopted as a guiding principle of life, it becomes a *permanent end* an oft-recurring motive idea is thus a permanent end of life. A person, for example, who habitually acts for the sake of honour, may be said to have honour as his permanent end of life. Numerous acts of his life on diverse occasions come under the regulation of this dominant impulse. And when acts are thus unified or consolidated we get what is called *conduct*; each individual action is viewed in this case as bearing on some portion of the lasting welfare represented by a permanent end of life.

Complexity of human action arises, however, not so much on account of the mere development of new springs of activity, as on account of the resulting conflict or co-operation of desires and inclinations. Human acts are mostly the outcome of several impulses. It is in infancy that a comparatively simple action by reference to a single impulse may be found. With the increase of years one is moved by several considerations for the performance of an act. Even so simple an act as taking an evening-walk may be influenced by several desires, such as those for muscular exercise, fresh air, change of scenery, meeting a friend, etc. Complexity of action, due to the presence of several desires or impulses, may be illustrated in either of two forms (i) The case in which several springs of action converge or co-operate and thus expedite a performance, (ii) the case in which they diverge or are in conflict with one another, thus retarding execution.

Difference between a motive idea and a permanent end.

Acts unified by a permanent end constitute conduct.

Complexity is due either
(i) to co-operation or
(ii) to conflict.

(i) Co-operation expedites action and yields pleasure

(z) Co-operation of Springs of Action When several springs of action work in the same direction, the mental effect, according to the law of harmony, is agreeable and the execution of the act, speedy and easy. A familiar case of such co-operation is illustrated when an act is itself agreeable, the result being also so.

(ii) Opposition hinders execution and occasions pain.

Forms of opposition.

(zz) Opposition of Springs of Action. When springs of action are in conflict with one another, then the experience, according to the law of conflict, is painful and the performance of the act is rendered difficult, it is delayed and may even be abandoned. The opposition may be illustrated in various forms—for example, (a) conflict between two or more presentative springs of action, that is, desires arising from circumstances actually present (e.g., when a boy is pulled, so to speak, in two directions being attracted by a passing procession and at the same time by an interesting talk) (b) Conflict between a presentative and a representative spring of action (e.g., when a child is led to taste a mango and also to put it aside for to-morrow), (c) conflict between a concrete desire or impulse and a motive idea (e.g., when a boy is tempted to take a dish but apprehends indigestion), (d) conflict between a concrete impulse or a motive idea and a permanent end of life (e.g., a person sacrificing his health for considerations of honour).

Psychological
and moral
importance of
on or

The opposition of springs of action is specially important from the psychological stand-point as well as from the moral, because (i) the reflective

process is much more prolonged and complicated here and (2) moral conduct is often the outcome of a conflict between duty and inclination. Opposition of impulses may lead either to temporary suspension or delay or to abandonment of an action*. The opposition is illustrated in three prominent forms —

(1) *Action Arrested by Doubt.* Prior to experience a child is disposed to undertake almost anything, being unaware of the difficulties and obstacles. Experience of failures begets doubt ; and subsequently, when the child is placed in a similar situation, the impulse to action is opposed by doubt. Hence doubt or hesitation generally characterizes adult action , and it is illustrated also in early years in the case of children who are wanting in vital energy and who are specially attentive to the results of their acts.

(2) *Recoil of Desire.* This is prominently illustrated in three forms (a) when a desire for an agreeable issue prompts to an action which is known to be disagreeable (*e.g.*, leaping out of bed on a wintry morning to finish some work) ; (b) when an action is desired for its agreeable aspect, there being, however, a deterrent impulse owing to a disagreeable consequence (*e.g.*, scratching an itch), and (c) when mixed consequences of an act

which may lead either to suspension or to abandonment of action

The prominent forms of opposition are—

(1) Action arrested by Doubt, due to the experience of difficulties and failures ;

(2) Recoil of Desire, due to the expectation of mixed consequences,

* The physiological conditions of such opposition are to be found (a) partly in the central nervous and (b) partly in the muscular factor (a) The exercise of one centre corresponding to one impulse involves an inhibition of an exercise of a different centre corresponding to a hostile impulse (b) Stimulation of opposing muscles, corresponding to hostile impulses, brings about an arrest, temporary or permanent, of an action

give rise to a conflict (*e.g.*, a boy inclined to attend a party against his father's wish)

and
(3) Rivalry of Impulses,
owing to the influence of antagonistic inclinations or dispositions

Rivalry of impulses and recoil of desires are closely connected

Conflict leads to an exercise of Self-control through Deliberation, Choice, and Resolution

(3) *Rivalry of Impulses.* This is illustrated when two opposite and hostile tendencies prompt us to two hostile directions, giving rise to conflict (*e.g.*, when a student, who is fond of music, is disposed at the same time to attend a concert and to prepare his lesson). It needs scarcely any mention that rivalry of impulses and recoil of desires are closely connected. Desire for one thing amounts to aversion to the reverse. Both these forms are usually illustrated in the shape of a conflict between immediate and remote, temporary and abiding, interests.

§ 5. Character, Conditions, and Forms of Self-Control Conflict or opposition of springs of action is an occasion for the self to exert itself and thus to strengthen or weaken the forces which act on it. A spring of action is but a tendency excited by an object affecting psycho-physical organism, and a conflict of such tendencies implies an antagonism between mental modifications which can terminate only by the weakening of the one and the strengthening of the other. At times the conflict is brought to a speedy termination by immediate decision,* though usually (specially in adult life) it is prolonged for some time by the deliberative process before any decisive step is taken. As, therefore, Deliberation, Choice, and Resolution are generally the prelimi-

* Prompt decision may even be due to the simple desire of avoiding the painful state of conflict. ↗

nary steps to an exercise of Self-control, let us first give a brief account of these preparatory processes before proceeding to examine the character and forms of the consequent mental phenomenon.

Deliberation. The term, as the etymology of the word (Lat. *de*, and *libo*, to weigh, from *libra*, a balance) indicates, properly implies weighing, as it were, in the mental balance the respective claims or influences of the conflicting springs of activity with a view to decide which of them should determine conduct. A state of conflict is usually a state of hesitation in which the rival claims of alternative courses of action are considered with a view to choice.

Deliberation
is the
comparison of
alternative
courses of
action prior
to choice.

"So much to win, so much to lose,
No marvel that I fear to choose." (*Miss Landon.*)

In the deliberative process the mind thus compares the relative values of the alternative courses suggested by the conflicting tendencies in order to arrive at a decision consistently with some principle or rule of action. This account of deliberation is, however, not accepted by empiricists and determinists, who deny any independent agency of the mind apart from the influence of the springs of action. According to them, deliberation is but the mutual trial of strength of rival impulses, prolonged owing to the recollection of the painful consequences of hasty action. But this view contradicts the fundamental conception of mind as an active agent and imagines the springs of action as

It implies a
comparing
self.

The empirical
account of
Deliberation
is not tenable.

independent entities that contend with each other to bring about an issue. Besides, the recollection of the painful consequences of hasty action, which is taken to be the motive of deliberation, can, in any intelligible sense of the expression, be attributed only to an abiding self enduring in the midst of its fluctuating states and not to any of the conflicting springs of activity which are but its passing expression.

Choice is a definite volition to follow a particular course, as distinguished from other courses. It implies a selecting mind. The empirical account is unsatisfactory

Choice. It indicates the volition to follow a course of action as distinguished from other courses suggested by rival springs of activity. It implies a self that, on the occasion of its conflicting tendencies, strengthens the one and weakens the rest, thereby determining a line of action. It is born of conflict and reflection and is thus distinct from impulsive action, which is determined by a single spring of activity monopolising attention. This account of choice, as the outcome of the active regulation of attention and so the selection of what appears to be eligible at the time, is also disputed by empiricists and determinists. According to them, choice is merely the greatest attraction which an object has pre-eminently of all other objects it is but the passive resolution of conflict brought about by the relative strength of competing springs of action. But this view contradicts the very essence of choice, which signifies active selection out of alternative possibilities open to an agent at any moment. Moreover, the very supposition of conflicting springs of action as independent forces is inconsistent with their true

psychological estimate as mental modifications, which by themselves can have no existence and no energy.

Resolution. It is the mental determination to follow a particular course already chosen on the occurrence of appropriate circumstances. It is an active attitude of mind bent on doing what has already been decided. Thus, a student may resolve to-day to appear at the B. A. Examination of the next year. The strength of resolution in any case depends, no doubt, on the strength of character already acquired and on the adequacy of the representation of the several grounds on which the decision is based,—unless, of course, the resolution be of the character of blind obstinacy or fickle purpose.

Resolution
is the
determination
to do
afterwards
what has
already been
decided

It may be of
various
degrees
of strength

"Men make resolves and pass into decrees
The motions of the mind ! with how much ease,
In such resolves, doth passion make a flaw,
And bring to nothing what was rais'd to law,"

(Churchill.)

Empiricists admit that "When the action suggested by a motive or a concurrence of motives, cannot immediately commence, the intervening attitude is called Resolution." (Bain, *Mental Science*, p. 363.) And it is also conceded that "The state thus denominated is not a state of absolute quiescence or indifference. There is an activity engendered at once, the preliminary to the proper action , an attitude of waiting and watching.

Empiricists
admit it to be
an active
attitude,

which must
be a potential
condition of
the mind

Deliberation,
Choice, and
Resolution,
being forms
of self-
determina-
tion, help the
development
of Self-
control, wh ch
implies the
regulation of
desires and
impulses by
motive ideas.

Self control
is exercised
either in the
positive form
of persistence
or in the
negative form
of desistance.

the time and circumstances for commencing the course decreed" (*Ibid*) If, then, resolution is an active attitude ready to take effect when the opportunity comes, then it is a potential condition of the mind and not a passing phenomenon or a mere futurity.

All these processes of Deliberation, Choice, and Resolution are but forms of Self-determination—exercises of a mind, without which they lose their meaning and significance And self-determination is exercised in every case according to the character of the agent, as formed by previous habitual exercises of will in certain directions Character and action, as we shall see in the next Chapter, act and re-act on each other, thus influencing conduct in an important way The development of deliberation, resolution, and choice leads to the exercise of self-control. The impulses and desires excited by actual circumstances are controlled or regulated by motive ideas Self-control, accordingly, indicates the promotion of the abiding interests of self, sacrificing temporary solicitations. Self-control is manifested either (i) in a positive or (ii) in a negative form according as we persist in a difficult, or desist from an attractive, course. (i) The first is, accordingly, illustrated when we undertake what is unattractive or disagreeable ; and (ii) the second, when we refrain from what is tempting or agreeable. In both the cases we have to strengthen a weaker spring of action in order to counteract either (i) the depressing influence of difficulty or (ii) the stimulating influence of

allurement.* Self-control assumes different forms according to the faculty controlled or regulated. Thus, there are three principal forms of it, namely, (1) control of action, (2) control of feeling, and (3) control of thought. Let us consider them one by one.

(1), *Control of Action* Control of Action has already been illustrated in the preceding paragraphs. It implies the check or regulation of a lower or a comparatively presentative spring of action by a higher or a comparatively representative one. When a person, for example, refrains from acting in a particular direction because that is contrary to virtue or honour, he exercises this form of self-control.

(2) *Control of Feeling*. Feelings are controlled in a double way —(a) By the arrest of external movement or expression, we allay or extinguish the corresponding feeling, if moderate. The connection between a feeling and its expression being a natural one, suppression of the latter leads generally to the extinction of the former. When, however, a feeling is strong or intense, suppression of the outward expression is scarcely of any avail, it may even work in the opposite direction instead of weakening or quenching the feeling, it may intensify it.

"The deepest ice which ever froze
Can only o'er the surface close,
The living stream lies quick below,
And flows, and cannot cease to flow"

(Byron)

* The physiological conditions of self-control are partly central or nervous and partly muscular. The first implies that certain centres (for example, the higher centres connected with motive ideas) exercise a check upon others (*vis*, the lower centres connected

In either of these ways, Self control assumes three forms, which are—

(1) Control of Action, involving regulation of springs of activity,

(2) Control of Feeling, either by suppression of expression or by regulation of ideas,

(b) Feelings are controlled by the due regulation of ideas. When we divert our attention to something else, the connected feeling is also considerably weakened or altogether extinguished.

and
(3) Control
of Thought by
the direction
of attention

Importance of
the regulation
of ideas

The different
forms of
Control are
closely
connected
with one
another

(3) *Control of Thought* The control of thoughts or ideas is exercised by the direction of voluntary attention. When we direct our attention to a particular idea, we make it sufficiently distinct, vivid, and intense. And, if we withdraw our attention from an idea, it grows obscure, faint, and less powerful*. As the direction of ideas determines the flow of the feelings and, hence, the influence of desires, due regulation of thoughts is of immense importance from the moral stand-point. We should remember here that the control of action, of feeling, and of thought may be illustrated either in the positive or in the negative form, as described above.

Connection between the Different Forms of Control. They are very closely connected owing to (1) their relation of opposition and (2) their relation of connection. Intense feeling, vivid thought, or energetic action precludes a corresponding exercise of the rest. (*Vide Chap V, § 2*)

with instincts or concrete desires) The second or the muscular factor implies that opposite muscles are called into play in order to check the natural expression connected with opposite desires (*e.g.*, the ludicrous feeling, if moderate, may be checked by the suppression of laughter).

* The determinists contend that the exercise of voluntary attention is itself determined by its own motive—what is called 'the motive of reflection', due to the recollection of the painful consequences of hasty action. But this 'motive of reflection', as freely calling up the various considerations bearing on the line of action at the time, involves an active regulation of thought-processes and not merely the passive flow of ideas as determined wholly by suggestion. (*Vide § 8*.)

Again, the regulation of ideas influences feeling and therefore action, feelings, in their turn, determine the flow of ideas and influence action; and a strong tendency to action fosters belief, begetting the development of feeling as well as of ideas.

Volitional Control of Belief. Belief, involving intellectual, emotional, and volitional elements, may be regulated or controlled by reference to the close relation existing among these factors (*Vide* Chap XVIII, § 3) The control of belief thus involves the control of the intellectual, emotional, and conative factors conditioning it.

Limits of Control. A very powerful mental tendency—intellectual, emotional, or volitional—can scarcely be controlled. Intense feeling, vivid thought, and a strong propensity for action are often beyond check. The strength of will is measured by the strength of the desire or impulse overcome In fact, the strength is often *proportionate to the intensity of the effort put forth.*

§ 6. Effort of Will and Consciousness of Power. The phenomenon of effort is illustrated when the mind has to overcome a great difficulty. It may manifest itself in the form of (a) physical, (b) mental, or (c) what is called moral effort.

(a) *Physical Effort* is exemplified in the form of muscular strain. When, for example, we have to lift a very heavy weight or to struggle against a strong current, this form of effort is illustrated.

(b) *Mental Effort* is illustrated in the shape of the effort of attention. When, for example, in spite

Control of Belief is exercised through the regulation of the intellectual, emotional, and conative elements which enter into it

The Limits of Control are determined by the intensities of the tendencies which have to be controlled.

The strength of will in any case is measured by the intensity of effort put forth.

Effort of Will implies strain or exertion in overcoming a difficulty. Its different forms are—

(a) *Physical Effort*, involving muscular strain,

(b) *Mental Effort*, involving a

vigorous
exercise of
attention,

and (c) *Moral Effort*,
implying an
adherence to
duty in spite
of great
difficulties.

Effort always
involves active
consciousness
in a prominent
form,

which helps
the develop-
ment of the
consciousness
of Power or
Agency

of distracting circumstances, one keeps his attention fixed on his study ; or, in spite of strong temptation, he never loses sight of his duty, mental effort is illustrated in a prominent form.

(c) *Moral Effort* is but a form of mental effort illustrated in the sphere of morality. It implies an anticipation of difficulties and confronting them with a view to the attainment of a moral end. Thus, when a person undertakes to defend the cause of the oppressed anticipating opposition and obloquy, his conduct illustrates moral effort in the proper sense of the term.

All these forms of effort involve active consciousness in a prominent form in physical effort there is a feeling of muscular strain in overcoming resistance , and in mental and moral effort there is a taxing of attention and intensification of mental activity to overcome an obstacle. Hence the consciousness of effort is specially suited to develop our *Consciousness of Power or Agency*. A germ of this consciousness manifests itself when the child begins to regulate his movements and to produce changes in the external world by his own exertion Though volition lies at the root of this consciousness, yet this fact escapes his notice until a certain development of the power of abstraction. It is revealed to us on the occasion of the volitional regulation of our movements, especially when these produce striking changes in the relative position of our limbs, in the condition of our organism, or in the environment. Thus, a child, breaking a toy, plucking a flower, or throwing a ball, attributes the

result to his own agency and begins to think of his power of producing these effects. Thus, the idea of power or personal agency develops in close connection with the development of the idea of causality. But the full significance of these ideas is grasped when the operations of will are apprehended in their true character, with the development of the power of abstract thought. (*Vide* next section)

The idea of Power develops in close connection with the idea of Causality

§ 7. Will and Causality. To determine the relation of these, let us first enquire into (1) their character and (2) the question of their relative priority as facts of personal experience.

(1) *Will*, as we have seen, implies rational choice from among the materials supplied to it. (*Vide* § 1) Whenever conflicting impulses attract us in different directions, we decide to act in either direction we like Consciousness testifies to the fact that by the direction of attention to one impulse we strengthen it, and by the withdrawal of attention from another we weaken it. So that, if finally we act in the direction of the stronger impulse, it is because we, by dwelling on it, intensify its force. Attention, we know, has two aspects—positive and negative, the former is illustrated in concentration, and the latter in abstraction. The two sides go together. Whenever we direct our attention *to* something, we withdraw our attention *from* something else. The effect of attention upon any fact to which it is directed is, as we have seen, to raise it in point of vividness, distinctness, and clearness, and to lower in these respects other competing impres-

(1) The question of the character of will

Will is a power of rational choice exercised upon conflicting impulses, influencing the mind

By regulating attention we can strengthen or weaken such impulses.

sions or impulses. Thus, when pulled, as it were, in different directions by rival impulses, we allow ourselves to be led by this or that impulse, according to our requirements, and leave the rest in the shade. An impulse is but a modification of the mind. When one such modification is intensified by the expenditure of personal energy, any other modification inconsistent with it is naturally weakened and finally suppressed. We are thus immediately aware of ourselves being the causes of our own determinations, when prompted by conflicting impulses it is left to us either to persist in a course of action or to desist from it. Buddha well observes, "As when a house roof is not properly secured, then the rain finds a way through it and drops within, so when the thoughts are not carefully controlled, the desires will soon bore through all our good resolutions. But as when a roof is well stopped then the water cannot leak through, so by controlling one's thoughts, and acting with reflection, no such desires can arise or disturb us" (*Dhammapada*, Sec IX.)

We are thus
the causes of
our own
determina-
tions

Causality
implies an
agency to
produce an
effect,

but not
necessarily
uniformity

Causality, as the agency of a cause, explains the relation of cause and effect by showing how the latter is produced by the former. The causal relation as observed in Nature is, no doubt, uniform and invariable, but uniformity or invariability is not essential to the causal conception. Nature is an aggregate of diverse laws which generally converge to the production of definite results. In chemical combination, for example, certain elements mixed in certain proportions yield

definite compounds. The law of definite proportions is thus associated with the law of chemical affinity in the production of a chemical compound. But the law of definite proportions, though essential to the uniform operation of Nature, and so to our coherent experience and expectation, is not theoretically inseparable from the very nature of chemical combination. Mere definite proportions, without chemical affinity, can never give rise to a compound. But the supposition of chemical affinity alone yielding chemical compounds, without any definite rule or room for expectation, is not *ipso facto* absurd. All that can be said is that, on such a supposition, an effect would be produced but could never be predicted. In such a world there would be continual surprises, without any consistent experience in the proper sense of the term each event will have to be judged by itself, without affording any clue to the interpretation of the rest. There would thus be causation, though no uniformity. In such a world it would be difficult for creatures to live, for they would not be able to form any expectation or calculation with regard to an unknown event, but events in such a world may still be produced by causes. Thus, causality merely implies efficiency or capability to produce an effect. Whether such efficiency is employed uniformly or not, is not a question within the proper sphere of causality at all. "The idea of causation", as Dr. Ward observes, "in no way whatever depends on the uniformity of nature." (*Philosophy of Theism*, Vol. I, p. 333.)

Uniformity is
essential to
experience
and
expectation.

Dr. Ward's
testimony.

The law of causation is a synthetic judgment *a priori* proved by personal experience.

The law of causation, as Kant points out, is a synthetic judgment *a priori*. That whatever has a commencement has a cause cannot be regarded as an analytical judgment, because the notion of commencement does not necessarily involve the notion of cause. These two ideas are connected together by personal experience, which reveals that every determination is caused or produced by mental agency. The vacillating or wavering condition of the mind, when it is swayed by conflicting impulses, is changed into determination or resolution by the expenditure of personal energy in the form of what we call 'choice'. If causation illustrates conservation of energy, it is because we have an immediate knowledge of the transformation of mental energy from one form into another on the occasion of a volition. We have already mentioned that every experience implies some expenditure of personal energy—however slight, what we call the passivity of mind thus involves an element of activity. (*Vide* Chap V, § 6) When, therefore, the mind is modified in two distinct ways corresponding to two distinct impulses, such modification assumes a definite shape by the expenditure of what we call volitional energy. The prior indeterminate attitude is changed into a determinate form by an act of choice. Thus, the connection between cause and effect is directly revealed in volitional exercise, which converts a vague potentiality into a definite actuality, an indeterminate craving to act in this way or that into a determinate resolution to act in a definite direction.

Volition
directly
Is the
cause
...
cause
...

A distinction has sometimes been drawn between the law of causation and the law of uniformity of nature with regard to their origin. Martineau, for example, maintains that the former is intuitive, while the latter is derivative in character : "We must carefully distinguish", he writes, "between the *a posteriori* reliance on the 'uniformity of nature', and the *a priori* belief that 'all phenomena are derivative.'" (*Study of Religion*, Vol. I, p 158) This distinction, however, seems to be untenable. Whether the law of causation can possibly be derived from experience, we shall examine just now. But it appears to us that both the laws of causation and uniformity are *a priori* in origin, conditioning our future experience. And, if we believe in a teleological or biological correspondence between nature and mind, such a supposition does not appear to be groundless. If the mental world vibrates in unison with the material, then it is but natural that we should expect a cause whenever an event happens in nature. Our anticipation is in accordance with the ways of the world. An infant, for example, tossed a little too high, would betray all the signs of fear, though previously it had no experience of gravitation, nor had it worked out a problem of mechanics. If, therefore, in nature every event has a cause, and this cause operates uniformly in the production of an effect, then it is but natural to expect that the mind should be predisposed to construe events as caused and uniform in their occurrence. Hence is it that we are unable to conceive an event as uncaused and

Martineau regards the law of causation as *a priori* and the law of uniformity as *a posteriori* ;

but both the laws seem to be *a priori* in character.

Such a supposition is consistent with teleology.

The law of uniformity may be viewed as but an aspect of the law of identity

Admission of empiricists

also, unless prompted by repeated experiences to the contrary, that the same cause under the same circumstances may give rise to different effects. In fact, the law of uniformity of nature may be regarded as but an aspect of the law of identity ; when we say that Nature is uniform, we mean that her operation is identical in like circumstances, the same effects are produced by the same causes. Even empirical writers are at times forced to admit that we are often led to form our expectations by the "mere instinct of generalization".* A child, for example, who has seen but one cow that is red would expect other cows to be of the same colour. Likewise, a child, who had painful experience from a surgeon dressed in a peculiar fashion, begins to cry when seeing afterwards a person similarly dressed. Such expectations are but the expression of "the instinct of generalization", and they continue, unless contradicted by subsequent experience. So, we are predisposed to construe Nature as uniform, unless contrary experience tends to show that she is variable and capricious in her conduct. And if such apparently be our experience, we are surprised at the diversity, our natural tendency being towards unity, identity, or uniformity.

(2) *The question of the relative*

(2) The above exposition must have prepared the way for an answer to the next question of the

* Bain writes—"That change of every kind whatsoever follows on a definite prior change, could not be affirmed in early times, except by the mere instinct of generalization, which is no proof" (*Inductive Logic*, p 113.) It is, of course, no proof of objective sequence, but it is proof of subjective conviction or tendency.

relative priority of the two experiences of volition and causation. (a) The empiricists generally contend that we have first a knowledge of causation in the external world and then we come to interpret volition in the light of this knowledge. Starting with experience, they interpret causation as mere sequence. From the stand-point of an outward observer we can observe only phenomenal relations, distinguished as co-existent or successive, and, in the latter case, we distinguish between variable and invariable succession. Finding the operation of cause to be uniform in nature, we come to regard, with Hume, invariability as a mark of causation. And, if personal experience reveals that the cause inevitably gives rise to the effect, we are led to hold, with Mill, that the cause is not merely the invariable, but also the unconditional, antecedent. Thus, the cause is defined as 'the invariable and unconditional antecedent,' and this physical theory of causation is then forced upon the workings of our own mind. Mill, for example, advances the following argument for subjecting the human will to the universal law of (physical) causation. "To the universality which mankind are agreed in ascribing to the Law of Causation, there is one claim of exception, one disputed case, that of the Human Will, the determinations of which a large class of metaphysicians are not willing to regard as following the causes called motives, according to as strict laws as those which they suppose to exist in the world of mere matter. This controverted point will undergo a special

priority of volition and causation

(a) *The empirical view*

The law of causation is said to be primarily derived from outer experience and then applied to the interpretation of the phenomena of inner life

Hume.

Mill.

examination when we come to 'treat particularly of the Logic of the Moral Sciences. In the mean time I may remark that 'these metaphysicians, who, it must be observed, ground the main part of their objection on the supposed repugnance of the doctrine in question to our consciousness, seem to me to mistake the fact which consciousness testifies against. What is really in contradiction to consciousness, they would, I think, on strict self-examination, find to be, the application to human actions and volitions of the ideas involved in the common use of the term Necessity , which I agree with them in objecting to. But if they would consider that by saying that a person's actions necessarily follow from his character, all that is really meant (for no more is meant in any case whatever of causation) is that he invariably *does* act in conformity to his character, and that any one who thoroughly knew his character could certainly predict how he would act in any supposable case , they probably would not find this doctrine either contrary to their experience or revolting to their feelings And no more than this is contended for by any one but an Asiatic fatalist" [*Logic*, Vol. I, p 380, foot-note.] (b) I

Human action, according to this view, follows necessarily from character and circumstances.

(b) *The intentional account.*

Causation is directly revealed in volition, which becomes the key to the interpretation of outer things.

is contended, on the other side, that we have first an experience of volition, which reveals the causal connection in the manner indicated above. It may be said in support of this view that causation is an intelligible relation, the true import of which can be gathered only by reflective analysis and not by sense-perception Had causation been a sense-

quality, the testimony of the senses would have been final. It expresses, however, a connection among phenomena, which apart from it are perceptible but not intelligible. As mere spectators of the world, we may observe bare succession or co-existence, without any suspicion of causal link. The phenomenal theory of causation regards the cause as a mere premonitory sign of the consequent. The cause, however, is not merely a herald announcing the approach of the consequent, it is an agent which gives rise to the effect. This is practically admitted by Mill himself, according to whom 'unconditionality' is the distinguishing mark of causation. Under cover of this word Mill surreptitiously introduces the notion of agency into the cause : only that antecedent, which, without any other condition, *can produce* the effect, is fit to be regarded as cause. The idea of necessary connection is so interwoven with the character of the causal relation that Mill himself, in spite of his protest, is forced to admit that "The causes on which action depends are never uncontrollable, and any given effect is only necessary provided that the causes tending to produce it are not controlled" (*System of Logic*, Bk VI, Ch. II, § 3.). So long, therefore, as a cause is not counteracted its effect is inevitable ; we come then to the 'must' beyond the 'does' of Mill. This conviction we can only have from the stand-point of an agent and never from the stand-point of a mere outward observer.

Thus, the relation of Will to Causality is that Volition,

Causation is an intelligible relation apprehended by reason, and not a sense-quality perceived by sense

The cause is not merely a premonitory sign, but an efficient agent

Mill practically admits this, when he describes the cause as the 'unconditional antecedent' and holds that an effect is necessary so long as its cause is not controlled

Necessary connection can be known only through volitional, and not sensuous, experience

then, gives us a direct knowledge of causality, which is gradually extended to the interpretation of the phenomena of the external world. Testimonies of Zeller,

Mansel,

we have an immediate knowledge of the latter in the exercise of the former, and, having gathered the notion there, we extend it to the external world for the interpretation of its changes "When man begins," says Zeller, "to reflect on the grounds of things, the question of the *Why* (*Varum*) is forced upon him first by particular phenomena of the more striking kind, and in course of time by continually more of them, and in answer to this question the first notions of causality are formed, he is at the outset guided in this matter by no other clue than the analogy of his own Willing and Doing For *we ourselves are the one only cause of whose mode of action we have immediate knowledge, through inner intuition* In the case of every other, though we may perceive its effects, we can only infer from the facts, and cannot immediately learn by perception of the facts, the mode and kind of way in which those effects arise, and the connection of them with their cause." Mansel likewise observes, "The causal judgment, as usually understood, appears to contain something more than the idea of antecedence. The cause is supposed not merely to precede the effect, but to have power to produce it. Whether the notion of *invariable recurrence* is included or not, it seems at least to be regarded as certain that upon any one occasion the effect is so far completely dependent upon the cause that, the latter being given, the former cannot but take place The explanation of this impression may, we think, be found in another association derived from the personal causality

manifested in volition. In the exercise of an act of will I am intuitively conscious of two things.—First, that I am acted upon, though not necessitated by, motives secondly, that I act upon my own determinations as their producing cause. In the first relation I am conscious of a choice between two alternatives, that is to say, that from certain given antecedent motives a particular consequent may or may not follow, as I choose to determine. In the second relation I am conscious of an exercise of power, the final determination being called into existence by an act of my own will. To this intuition may be traced the origin of the idea of power and of causation, in a sense distinct from that of mere temporal antecedence. The power of which I am presentatively conscious in myself I transfer representatively to other agents whom I suppose to be similarly constituted to myself, and thus I regard other men as being, like myself, the efficient causes of their own determinations, and, through their determinations, of their actions." (*Metaphysics*, pp. 268-270.) According to Martineau also "Causality is identical with our self-knowledge of the exercise of will, and that exercise, presupposing the presence of two or more possibles, consists in turning one of them into an actuality, and so replacing what was previously contingent by what is now necessary." (*Study of Religion*, Vol. II, p. 241.)

Though, however, the external cause is thus interpreted by reference to the internal, yet a distinction gradually comes to be drawn between

and
Martineau.

Gradually the
difference
is noted
between the

internal cause
as intelligent
and free and
the external
cause as
blind and
mechanical

the two. At the outset, no doubt, children attribute intention and consciousness to external causes and expect also variations such as are observable in the case of human volition. But experience soon teaches that the ways of the external world are inflexible and characterized by hard necessity,* though the volitions of the human mind are variable and amenable to reason.

§ 8. Free-Will and Necessity The problem of Free-will and Necessity, though primarily a psychological question, has also an ethical and a theological importance. Without entering here into the ethical and the theological aspect of the controversy, we shall confine our attention only to the psychological aspect of the problem.

*The
Psychological
Aspect of the
Question*

The
libertarians
admit the

The psychological aspect of the controversy depends on the relation of motive to volition. The advocates of human freedom urge that the mind has the power to act in any direction it likes, apart from the initial strength of impulses. "At

*Reflection reveals that the uniform operation of natural causes and hence the fixed character of natural laws is conducive to the well-being of finite creatures, who otherwise will not be able to form any expectation and guide their conduct in this temporary abode of theirs. Laws, and not caprice, can alone render experience possible and this world habitable. Extravagant expectations of divine interposition are thus inconsistent with teleology. As Pope asks—

"Think we, like some weak Prince, th' Eternal Cause
Prone for his fav'rites to reverse his law's?
Shall burning Aetna, if a sage requires,
Forget to thunder, and recall her fires?
On air or sea new motions be impress,
Oh blameless Bethel! to relieve thy breast?
When the loose mountain trembles from on high,
Shall gravitation cease, if you go by?"

(*Essay on Man*)

whatever moment and within whatever sphere," writes Dr. Ward, "my soul has the proximate power of acting as an originative cause—whether it *exercise* that power or no—at that moment and within that sphere my 'will' is said to be 'free'" (*Philosophy of Theism*, Vol. I, p 384.) The necessarians, on the other hand, contend that the strongest desire or motive determines volition or the course of action on any occasion. Let us illustrate our remarks by an example. If a religious mendicant begs only for a penny and refuses the offer of a sovereign, his conduct may be construed as supporting the doctrine of freedom, in as much as he apparently acts in the direction of a weaker impulse, rejecting the stronger temptation for a sovereign. But a necessitarian would say that though the attraction of a penny is less than that of a sovereign, yet action is not really in the direction of a weaker impulse. The mendicant wants to show that he is above temptation, so that his vanity coupled with the desire for a penny far outweighs the mere desire for a sovereign. Thus, when the individual apparently acts in the direction of a weaker impulse, he really acts in the direction of a stronger compound spring of action the combined influence of vanity and gain, it is urged, is evidently stronger than mere love of gain. We mistake necessity for freedom simply because our analysis of the situation is imperfect. If, in any case, we take the trouble of adequately analysing all the impulses at work, we shall discover that action is always in the direction of the strongest desire, as the incli-

power of free
choice in
man,

while the
necessarians
deny such
a power and
maintain
that the
strongest
impulse or
desire in
any case
determines
volition.

Illustration of
a religious
mendicant.

nation of a balance is always in the direction of the heavier weight. "Men," says Spinoza, "think themselves free in as much as they are conscious of their volitions and desires and never even dream, in their ignorance, of the causes which have disposed them so to wish and desire" (*Ethics*, Book I, Appendix, p. 75 Elwes' Translation)

Mill prefers
the term
'Determinism'
to 'Necessity'.

Mill objects to the appellation 'necessity' as a badge of the deterministic doctrine, as it leaves no room for freedom. He prefers "the fairer name of *Determinism*" and contends that there is room for freedom even in the so-called doctrine of necessity. A man may be said to be free when he is free from outer constraint or compulsion. The freedom of an agent, according to this view, merely means his "being free from hindrance or impediment in the way of doing or conducting, in any respect, as he wills." (Jonathan Edwards, *The Will*, Part I, Sec 5.) Bain likewise observes, "The proper meaning of 'free' is the absence of external compulsion, every sentient being, under a motive to act, and not interfered with by any other being, is to all intents free, the fox impelled by hunger, and proceeding unmolested to a poultry yard, is a free agent" (*Mental Science*, pp 398—399) It may be mentioned, however,

A man,
according to
him, may be
said to be
'free'
when
there is
absence of
external
constraint
Jonathan
Edwards,

Bain

The question,
however, is
not one of the
presence or
absence of
outer
constraint,
but one of
inner free
choice.

that the question here is not about the presence or absence of external constraint, but about the power of free determination on the part of self the point at issue is not the relation of self to not-self, but the relation of motive or impulse to agent. Are we to conceive the self as merely passive—a mere

aggregate of impulses, "a reservoir of ideal ends"—in which these decide by their mutual trial of strength what is to be achieved? Is self but the arena where rival combatants fight out their cause by measuring their strength? We should remember that the impulses or ends are not independent agents but mental modifications, the relative strength of which depends on the character of mental activity or the exercise of attention. Is reflection indifferent to its materials or are they affected in any way by it? An appeal to consciousness reveals that we can determine by personal reflection which impulse is to gain in force and which to lose (*Vide* § 7) Even Sidgwick, with his hedonistic leanings, admits that "Against the formidable array of cumulative evidence offered for Determinism there is but one opposing argument of real force; the immediate affirmation of consciousness in the moment of deliberate action. And certainly when I have a distinct consciousness of choosing between alternatives of conduct, one of which I conceive as right or reasonable, I find it impossible not to think that I can now choose to do what I so conceive." (*Methods*, p. 67.) Let us consider now "the formidable array of cumulative evidence offered for Determinism."

It is contended, as we have seen, that acts uniformly follow from character and circumstances, so that the strongest motive or impulse always determines our choice. "The law of causality," it is urged, "applies in the same strict sense to human actions as to other phenomena," involving

The impulses are but mental modifications, the relative intensities of which are determined by personal reflection

Admission of Sidgwick.

Arguments in favour of 'Determinism' examined

It is urged that the strongest motive or impulse always determines volition

in both cases "not constraint" but "invariable, certain, and unconditional sequence" (Mill's *Logic*, Bk. VI. Ch. II, § 2.) The moral causes or antecedents, determining volition, "are desires, aversions, habits, and dispositions, combined with outward circumstances suited to call those internal incentives into action. All these again are effects of causes, those of them which are mental being consequences of education, and of other moral and physical influences." (*Examination of Hamilton*, p. 561.) The "doctrine of Philosophical Necessity," accordingly, is "that, given the motives which are present to an individual's mind, and given likewise the character and disposition of the individual, the manner in which he will act may be unerringly inferred that if we knew the person thoroughly, and knew all the inducements which are acting upon him, we could foretell his conduct with as much certainty as we can predict any physical event" (*Logic*, Bk. II, Chap. II, § 2, Vol. II, p. 410.)

Human volitions, it is said, are as invariably determined by inclinations and circumstances as natural effects by natural causes

But we should remember that causality implies efficiency and not necessarily uniformity

Inner causality explains the outer, and not *vice versa*.

We have already seen (*Vide* § 7) that causality does not necessarily mean uniformity or invariability, and that its essence lies in efficiency, of which we are immediately conscious in the first instance in the exercise of our own will. It is this inner causality which serves as a key to the outer, and the latter, not a key to the former. A careful and impartial analysis of the causal conception reveals that mere invariable sequence gathered from outer experience is not adequate to the interpretation of causality. Mill himself writes, "There are few

to whom mere constancy of succession appears a sufficiently stringent bond of union for so peculiar a relation as that of cause and effect. Even if the reason repudiates, the imagination retains, the feeling of some more intimate connection, of some peculiar tie, or mysterious constraint exercised by the antecedent over the consequent. Now this it is which, considered as applying to the human will, conflicts with our consciousness, and revolts our feelings. We are certain that, in the case of our volitions, there is not this mysterious constraint."

(*Logic*, Bk VI, Chap. II, § 2) Now, if all that we know of causation is the empirical sequence of events, how is it that we come to have "the feeling of some more intimate connection, of some peculiar tie or mysterious constraint exercised by the antecedent over the consequent"? How do we come to necessity from contingency, to the 'must' from the 'does'? (*Vide* § 1) The fact is, that we are immediately aware of the necessary connection between volition as cause and a particular determination as effect, and we transfer this connection to outer relations when they simulate the subjective relation of volition to a definite course of action. As the empiricists, however, are pledged to the denial of all innate tendencies and notions, they are naturally perplexed at the thought of 'necessity', which experience does not furnish. Thus, empiricism, which usually goes with determinism, fails to give a satisfactory account of causal necessity. But, with all the restraints of their system, they cannot shut their eyes to the fact that there is a 'peculiar tie'

Mere
invariable
sequence,
gathered from
sense-
perception,
cannot
explain
causation
Mill's
admission.
Empirical
sequence
cannot
account for
necessary
connection.

The notion
of necessary
connection,
gathered from
inner
experience, is
really used to
interpret outer
sequence

or 'mysterious constraint' between cause and effect. It is 'peculiar' or 'mysterious', because it cannot be satisfactorily explained from the empirical stand-point, and if it is thought that reason repudiates such a connection, it is because reason is often suborned by interest. But 'imagination, still true to original experience, can never get rid of 'the feeling' of such a 'tie' or 'connection'. We see, then, that causality, properly construed, does not contradict, but supports, the doctrine of freedom of will.

Let us next examine to what extent action is invariably the outcome of character and circumstances. 'Character' can never be interpreted by empiricists as an original frame of the mind, nor as a habitual disposition caused by a series of voluntary acts. Character is taken by them as determining volition, and not volition, character. At the earliest stage of action there must thus be a character of some sort, so that it may infallibly determine our acts. And, if such a character be not an original tendency, it must be a bent of the mind wholly created by circumstances. Are we to conceive, then, the human mind as a tennis ball driven hither and thither by impulses supplied from without? Does not the very conception of an impulse involve an original susceptibility, variation in which occasions variation in the impulses? And is the strength of an impulse dependent entirely on circumstances and not at all on the mental attitude towards them? We have already given reasons for holding that man is to a great extent a master,

Causality
rightly
interpreted
supports
freedom
of will

Character,
though
subsequently
influencing
volition, is
originally
determined
by it

and not a creature, of circumstances (*Vide Chap VI, § II*) The character of his experience and conduct is mainly determined by him and not for him so that if he falls, he alone is responsible for it, and if he improves his nature, the merit is his. Our destiny is thus to a great extent shaped by us "The character," as Martineau observes, "*includes the Will*; and so, while determining the act, leaves room for *self-determination*." (*Study of Religion*, Vol. II, p. 239.)

The plausibility of the empirical and utilitarian position depends mainly on confusion and fallacy (*vide Elements of Morals*, Chap. X, § 10); and such a confusion is also illustrated in the connected doctrine of will. It is contended that the strongest motive always determines our volition. But what is our measure for the strongest motive? "How shall we know," argues Reid very appropriately, "whether the strongest motive always prevails, if we know not which is strongest? There must be some test by which their strength is to be tried, some balance in which they may be weighed; otherwise, to say that the strongest motive always prevails, is to speak without any meaning. We must therefore search for this test or balance, since they who have laid so much stress upon this axiom, have left us wholly in the dark as to its meaning. I grant, that, when the contrary motives are of the same kind, and differ only in quantity, it may be easy to say which is the strongest. Thus a bribe of a thousand pounds is a stronger motive than a bribe of a hundred pounds. But

Determinism
rests on
fallacy and
confusion

How are we
to determine
the strongest
motive?

when the motives are of different kinds—as money and fame, duty and worldly interest, health and strength, riches and honour—by what rule shall we judge which is the strongest motive?

“Either we measure the strength of motives merely by their prevalence, or by some other standard distinct from their prevalence

“If we measure their strength merely by their prevalence, and by the strongest motive mean only the motive that prevails, it will be true indeed that the strongest motive prevails, but the proposition will be identical, and mean no more than that the strongest motive is the strongest motive. From this surely no conclusion can be drawn

“If it should be said, That by the strength of a motive is not meant its prevalence, but the cause of its prevalence, that we measure the cause by the effect, and from the superiority of the effect conclude the superiority of the cause, as we conclude that to be the heaviest weight which bears down the scale I answer, that, according to this explication of the axiom, it takes for granted that motives are the causes, and the sole causes, of action Nothing is left to the agent, but to be acted upon by the motives, as the balance is by the weights The axiom supposes, that the agent does not act, but is acted upon, and, from this supposition, it is concluded that he does not act. This is to reason in a circle, or rather it is not reasoning but begging the question.” (*Reid's Works*, Hamilton's Edition, Vol. II, p. 610)

If, by the result, the position becomes tautologous

If, by the cause, the position involves a vicious circle

The doctrine, therefore, that the strongest

motive uniformly determines volition is either fallacious or false. It either entangles us in a vicious circle or gives the lie to consciousness, which is the only secure foundation of all sound reasoning and philosophy. If, as Bain says, "We always judge of strength of motive by the action that prevails" (*Mental Science*, p. 401), then the position only means that the prevailing motive prevails, and this is analogous to the explanation given by Moliere's physician of the sleep-producing property of opium by reference to its soporific virtue. If, however, by the strength of a motive is meant its intensity, then consciousness testifies to the fact that the felt intensity of an impulse may be strengthened or weakened by personal reflection or the regulation of attention, so that if subsequently we act in the direction of what appears to be the strongest motive, it is because the will gave the motive its strength. It not infrequently happens that we restrain a violent passion by a calm resolve, which finally stifles the passion altogether. To solve a problem of will we should carefully observe, as Edwards points out, "The nature and circumstances of the *thing viewed*; the nature and circumstances of the *mind that views*, and the degree and manner of its *view*" (*Freedom of Will*, I, ii, 2.) It is admitted, then, that 'the degree and manner of view' affects a voluntary action. Nay, if we closely examine the character of human volition, we notice a fundamental difference between it and a natural event. The latter is *externally determined by previous events*, while the former is *internally determined by reference to future re-*

is false and fallacious

Personal reflection modifies an impulse

Admission of Edwards

Unlike natural events, volition is essentially

prospective
and free

D'Arcy's
testimony

quirements. Futurity, however, is intelligible only by reference to a mind conceiving it, and anything undertaken with regard to it is undertaken only to satisfy a mental need. "An act of will," says D'Arcy, "is determined by an idea of an end not yet realised. It is, in fact, from its very nature, the self-determination of a self-presenting subject, for not only does the idea of the end lie altogether within the subject, but its adoption by the subject as his personal good is his self-expression. The very fact, then, that volition is determined by motives is enough to overthrow the doctrine of Necessity or Determinism, in all its forms. *The Will is Free just because it is determined by motives.*" (*Short Study of Ethics*, pp 37—38.)

If, as Mill observes, necessity is an illusion, how can we be aware of the necessary connection of motive with action?

"Necessitarians," as Mill observes, "affirm as a truth of experience, that volitions do, in point of fact, follow determinate moral antecedents with the same uniformity, and (when we have sufficient knowledge of the circumstances) with the same certainty, as physical effects follow their physical causes" (*Mill, Examination*, p 561.) But if, even "when we have sufficient knowledge of circumstances," we can never be aware of necessary connection in the sphere of physical causation, which is taken as the primary experience, how can we be sure of such connection in the sphere of human volition, which is interpreted only by way of analogy to our experience of physical phenomena? How can we break through 'does' or contingency and arrive at 'must' or certainty in any sphere? But, even if we waive such an objection, which

may be pressed against the school of Mill, according to his admissions, it still remains to be proved, as a fact of personal experience, that volitions always follow determinate moral antecedents with uniformity and certainty. Character, no doubt, implies a definite tendency, formed by previous experience, to act or behave in a certain way under certain circumstances. But is it of such an inflexible nature as to warrant prediction without any possibility of failure? Character leaves room for expectation because it is due to the prior habitual exercise of our powers along definite lines. But is not such exercise itself the outcome of repeated acts of free choice, which gradually become uniform and mechanical because of the uniformity with which such choice is made? We must remember that the true source of character is to be found in the central fact of personality which, though ordinarily moving along definite lines by reason of previous experience, may baffle all expectations by a free and capricious exercise of its power. Thus, in the midst of self-imposed uniformity, there is always the active spontaneity of the ego that may surprise us with novelty and a regeneration of character along altogether different lines. As Mansel observes, "That no conceivable amount of information could enable a being of human constitution to predict with certainty the acts of another, is established by the same evidence of consciousness by which we know that there is a human constitution at all" (*Prolegomena Logica*, p. 336.) And Jevons likewise remarks,

Character, which is the outcome of the habitual exercise of will in definite directions, is not so inflexible and mechanical as to exclude the possibility of deviation.

The spontaneity of the ego is implied in volition as well as in character. Testimonies of Mansel and Jevons.

"In spite of all the boasted powers of science, we cannot really apply scientific method to our own minds and characters, which are more important to us than all the stars and nebulæ." (*Principles of Science*, p 734)

It is urged
that character
can never be
modified
without a
prior
modification
of the motives
which
determine it

Bain

It is contended by the supporters of determinism that any deviation from a habitual course of action or any regeneration of character must itself be conditioned by appropriate motives. It is urged that so long as the motives remain the same, the acts must continue to be the same; and when the motives are modified by circumstances, the acts necessarily vary. "Our character," says Bain, "is improvable, when there are present to our minds motives to improve it, it is not improvable without such motives. No character is ever improved without an opposite train of motives—either the punishment renounced by the Owenite, or certain feelings of another kind, such as affections, sympathies, lofty ideals, and so on. To present these motives to the mind of any one is to employ the engines of improvement. To say to a man, you can improve if you will, is to employ a nonsensical formula, under cover of which, however, may lie some genuine motive power. For the speaker is, at the same time, intimating his own strong wish that his hearer should improve, he is presenting to the hearer's mind the *Idea* of improvement and probably, along with that, a number of fortifying considerations, all of the nature of proper motives" (*Mental Science*, p 405.) Mill likewise observes, "The causes, on which action depends, are never

uncontrollable , and any given effect is only necessary provided that the causes tending to produce it are not controlled. That whatever happens could not have happened otherwise unless something had taken place which was capable of preventing it, no one surely needs hesitate to admit " (*Logic*, VI, Ch. 2, § 3) That the presence of motives is essential to action or modification of character is evidently a palpable psychological fact , and "whatever happens could not have happened otherwise, unless something had taken place which was capable of preventing it," is also a truism of the type expressed in the nursery rhyme—

"There was an old woman lived under a hill,
And *if she's not gone*, she lives there still."

The question, however, is not about the presence or absence of motives, or about their modification to bring about a modification of character ; but about the determining influence of the motives themselves apart from any agency on the part of the mind. Are the suggestion of the idea of improvement and the presentation of 'a number of fortifying considerations' alone adequate to bring about an improvement of character, without any determination on the part of the agent ? Can the mind place itself on the way to improvement by strengthening some tendencies to action and by weakening others ? And can such tendencies have any influence on our will, apart from active reflection or deliberative choice ? Volition is not merely the mechanical resultant of the (passive) influences

But the
modification
of motives
can be
effected by
personal
agency alone,
and not
merely by
external
suggestions.

Volition is a reflective solution of a practical problem.

'The motive of reflection' is not an external force, but an inward impulse, influencing conduct

at work on the mind ; it is a reflective solution of a practical problem by reference to such influences. "Voluntary action," as Aristotle says, "is that of which the *arche*, or originating cause, lies in the agent" (Wallace's *Aristotle*, p 105.) Psychological examination thus reveals that, if motives ever determine a course of action, it is because the strength of motives is derived from the agency of the mind itself, which by reflection intensifies some motives and weakens others It is, no doubt, contended by the advocates of the doctrine of Necessity that reflection itself is determined by motives The direction of attention, it is urged, is itself conditioned by what is called 'the motive of reflection' or the recollection of the agreeable and disagreeable consequences of different acts But it should be remembered that 'the motive of reflection' is not an external force or fascination, which chains the mind to a definite course. It is but the reason or ground, the motive or end, due to the essentially discriminative or elective character of our rational constitution. Though reasons are thus brought before the mind at the time of decision, yet the mind is not constrained to act in the direction of this or that reason The reasons are mere ideal or prospective considerations, the *pros* and *cons*, discussed before action , and that which is chosen becomes the motive The reasons influence, but do not determine, action they are inducements to will, and not fetters on it To interpret reasons as indissoluble bonds would be to destroy their essence and ignore the rationality of our constitution by

setting up blind necessity in its place. The free activity of the mind can never be denied without falsifying consciousness, which is the only secure foundation of all sound philosophy.

Free will
cannot be
denied
without
contradicting
consciousness.

§ 9 Exercises

1. Distinguish Simple from Complex Action. Describe the steps by which the Faculty of Complex Volition is acquired

2. Describe and illustrate the progress in the formation of Permanent Ends.

3. Explain the psychological conditions of Arrested Action and describe its different forms. Analyse the mental state resulting from the Conflict of Impulses

4. What do you mean by Conflicting Motives? Is the expression accurate? Illustrate your answer by concrete examples

5. How does Conflict arise among Springs of Action and how is it ended?

6. Illustrate by the description of a concrete case the process of Deliberation

7. What is meant by Choice or Decision? Analyse Resolution

8. Analyse the process of Self-control. Describe the chief forms in which it manifests itself

9. Explain how the power of Self-control is gradually acquired and how it operates within the spheres of Action, Feeling, and Thought.

10. Show that Self-control is the basis of Morality. Point out the limitations of Volitional Control

11. Give a psychological account of the nature of Character

12. How do you account for the sense of Freedom accompanying strong Resolution?

13. What is the question involved in the controversy regarding Free-will? Describe the two views held

14 Trace the development of Voluntary Activity and carefully analyse the same

15 State and discuss all the arguments that are brought for and against Freedom of Will and Determinism.

16 "The discovery that murders and suicides can be calculated by averages is not consistent with men being personally responsible for those actions, because responsibility implies freedom of the responsible agent from physical cause" Examine this argument

17. Show that Self-control consists in the regulation of Action, Emotion, and Thought in relation to each other. Point out how control in each case is possible.

18. Distinguish between power of Decision and strength of Resolution, and explain, with illustrations, the conditions, intellectual and otherwise, upon which each depends

19 Psychologically analyse the process in the mind of a person who, being solicited by several conflicting springs of action, finally enters on a definite course of action

20 Show how the power of Self-control is developed, and illustrate its action from the spheres of Feeling and Thought

21 Examine the mutual relations of Conduct, Character, and Motive, and show that each of these may justly be regarded a proper object of Moral Judgment

22 What are the psychological arguments *for* and *against* the Freedom of the Will?

23 Is there a Will independent of Feeling and Desire?

24 Explain the transition from Involuntary to Voluntary Attention Give the psychological history of Choice Take an instance of voluntary action and analyse it fully and exactly

25 Trace the process, by which bodily movement is gradually brought under the influence of Will, up to the acquisition of complete Self-control

26 Illustrate by the description of a concrete case the processes of Conflict of Motives, Deliberation, and Resolution.

27 Discriminate between Instinct, Desire, Motive. De-

scribe Habit as a psychological principle ; and show how it operates within the sphere of Conduct

28 What is the function of the Will in Attention ? Have we the power to keep our attention closely fixed on any object which we may happen to select ?

29 What do you understand by Effort ? Distinguish Physical, Mental, and Moral Effort

30 Analyse and compare the mental processes involved (a) in willing to move one's arm, (b) in resolving to resist temptation ; showing the part played by Attention in each case

31 To what extent, and in what ways, is Control of Emotion possible ?

32. What is Voluntary Self-control, and how is the Self-control exercised by the developed character acquired ? Describe in detail the process of controlling an undesirable thought

33. What elements may be discriminated in the full analysis of a Voluntary Act ?

34 Give a careful psychological account of what is involved in a Volition, distinguishing between Volitions and Appetites, and between Volitions and Desires

35 Define Voluntary Action ; also the terms Motive, End, and Intention, used in connexion with it. Does Imitation (Mimicry) rightly fall under the description of Voluntary Action ?

36 In what respects are our Thoughts influenced by the Will ? and in what respects are they involuntary ?

37 Is it necessary to assume at the beginning a purposeless or random kind of action, in order to account for the development of the individual will ?

38 Compare the views of Bain and Spencer concerning the growth of Will ; and add your criticisms

39 Describe and analyse the growth of the Voluntary Power in the individual, pointing out the directions in which this power seems to be greatest and least

40 What are the essential elements of a firm or

strong Will? In what sense can a man of firm will be called free?

41 In what way may Character be described as a cause of Volition, in what sense as an effect? Compare Causality as attributed to Education with Causality as attributed to Will.

42 What are the chief difficulties in the way of applying the Law of Causation to Human Conduct?

43 Explain what you take to be the real question at issue in the Free-will controversy, and consider whether, and if so how far, "the perplexity of this controversy is mainly owing to the inaptness of the terms Liberty and Necessity to express the facts."

44 Investigate carefully the meaning which belongs to the word "necessarily," when it is said that our actions are necessarily governed by our motives.

45 Distinguish, if possible, Determinism from Fatalism.

46 Is it possible to account for the belief in Free-will, supposing that human actions are in reality always determined by conditions?

47 How do those who reject the Freedom of the Will endeavour to account for the alleged consciousness of Freedom?

BOOK VI.

MENTAL CONSTITUTION

CHAPTER XVIII.

CONCRETE MENTAL LIFE INDIVIDUALITY

1. **Unity of Mental Life.** From the above brief and imperfect account of the different phases of our mental life, it is clear that there are no absolute dividing lines between them. We have seen that the different faculties and functions are most intimately connected with one another, so that none of them can exist, operate, or develop without the rest, though there must of necessity be some limitation in regard to the degrees of their exercise. (*Vide Chap. V.*) Even if we take the different grades of our conscious life—the unconscious, the sub-conscious, and the conscious—we find there are no impassable gulfs between them. When, for example, I am writing these lines, the ideas engaging my attention and the symbols written are in the region of consciousness, while the mental effect produced by weather, paper, pen, ink, clothing, the condition of the vital organs, is in the sub-conscious region, and the ideas which I have already expressed and those which are not suggested to me just now are in the region of the unconscious. It is clear, however, that the facts of the sub-conscious and the unconscious region materially modify those of my conscious life, since a slight change in either of them would at once affect what is present in my

The unity of mind is revealed in the close connection between its different exercises

There is no absolute dividing line between the conscious, the sub conscious, and the unconscious,

consciousness. If, for instance, the weather changes or the paper, pen, ink, or any other circumstance be modified, then my present consciousness would not be exactly the same—my present consciousness is vaguely coloured by its dim back-ground behind, any change in which at once makes its effect felt—if not explicitly, at least implicitly. Similarly, the facts and principles which I retain, though lying in the unconscious region, also affect the course of my thought and hence the treatment of my subject. Thus, what is now in the one region may the next moment be in the other, revealing thereby that they are but varying conditions of one and the same mind according to the direction of personal energy and the attendant circumstances. (*Vide Chap. IV, § 9*) }

nor between the different faculties and functions explained separately in the above chapters

The concrete mental effect in any case is a complex whole determined by several factors—
intellectual, onal,
“ “ ve

What, in the intellectual sphere, we have described as perception or imagination is never in actual life simply a cognitive exercise, it involves also elements of feeling and conation in the form of interest and striving. Hope or fear, likewise, though born of cognition, very easily passes into emotion and into action. Similarly, emotions and impulses and volitions are implicated in one another and are closely connected with intellectual exercise. Thus, the different mental processes studied apart in the above exposition modify one another in actual operation, yielding a complex result. What, for the sake of scientific convenience, we have viewed apart and considered in an abstract form, really work together in the concrete life of an individual, giving rise to his actual impressions.

and ideas, prejudices and passions, inclinations and volitions. To understand, therefore, the individual constitution aright in any case, we must synthetically apply the facts and principles explained above, making due allowance for personal tastes and peculiarities.

§ 2 Character and Conditions of Belief

Belief seems to be a primitive attitude of mind in which all the mental faculties in their crude form—intellectual, emotional, and conative—are in equipoise. Primarily, it is an inchoate form of assurance connected with the acceptance of what is experienced. It is thus the characteristic of the original mode of consciousness. Though, in its fundamental and primitive form, all the functions seem to be well-balanced, yet in the course of its development it appears now with a preponderance of feeling (*e.g.*, in blind faith or prejudice), now with an intensified form of cognition (*e.g.*, in logical or judicial belief), and now with a marked active tendency (*e.g.*, in fool-hardiness or rashness). Hence the difficulty experienced by psychologists in classifying belief by reference to its predominant feature. Thus, some (*e.g.*, James Mill and Herbart) are disposed to take it as a form of cognition, (2) while others (*e.g.*, Hume and Ladd), as a mode of feeling; (3) and others again (*e.g.*, Bain* and Baldwin), as a form of conative or active attitude.

Belief is a primitive condition of mind in which its different functions seem to be in equipoise, though these vary in their composition with the development of the mind

Hence psychologists differ in their estimate of Belief

* Bain in his *Emotions and Will* and in the chapter on Will in his *Mental and Moral Science* advocates this view, but, in the Appendix (p. 100) of his latter work, he is inclined to take belief as an intellectual fact, due to "irresistible and inseparable association." Bain's first view that belief is essentially conative or volitional has subsequently been worked out by Lipps, James, and Stout.

Different meanings of the term

(1) Uncritical acceptance of a presentation, (2) recognition of a reality beyond the reach of intuition or actual experience;

(3) positive endorsement of something as a fact

The first of these is the cardinal sense

Belief is involved in every psychosis

The term 'belief' has been used in more than one sense (1) It is sometimes used in the sense of the primitive conviction involved in the acceptance of what is present. It is called by Bain 'primitive credulity' connected with reliance on experience—the uncritical acceptance of what is furnished to the mind. (2) It is also used at times in the sense of the recognition of a reality beyond the reach of intuition or sense-perception, as when one is said to believe in a future life or in the atomic theory of the universe In this sense belief is taken to be rather a mode of feeling than of cognition Thus, belief or faith is contrasted with knowledge or science. (3) It is further contended by others that belief is something more than the mere uncritical consciousness of experience it is a positive endorsement of something as real and not merely a blind acceptance of it In this sense, it involves enlightenment and a more distinct reference to activity. Of these three senses, the first seems to be the cardinal one, of which the other two are but extensions through the influence of feeling, evidence, or active disposition That this is really the case is clear from the fact that belief enters, more or less, into every psychosis—perception, memory, expectation, judgment, feeling, or activity—without which the very possibility of knowledge or experience would be nullified Nay, even doubt as a later experience involves belief in it, *viz.*, that the mind is in a wavering condition with regard to a particular point, as distinguished from an attitude of perfect assurance

Belief being thus the primitive feature of consciousness, it is conditioned by all the factors of our mental life—intellect, feeling, and conation. It may be mentioned, however, in this connection that though all of them contribute their share to the genesis of belief, yet the extent of their respective influences often varies with temperament and circumstances Let us now indicate the influence of these factors on the production of belief.

Belief involves intellectual, emotional, and conative factors

(I) Intellectual Factor Experience and association contribute materially to belief

Psychological Conditions of Belief

I Intellectual factor includes—

(1) Vivid and distinct impressions,

(1) *Vivid and distinct impressions* induce belief more readily than mere ideas and descriptions Observation or experiment, accordingly, convinces us more than mere abstract explanation. Thus, aeroplanes, submarines, gramophones, motor cars, telegraphic messages, or resuscitation by *yoga** are more readily accepted, when observed than when they are reported to us Hence, also the value of ceremonials in impressing on the minds of observers the solemnity and importance of certain

* "A well-known instance of suspended animation occurred in the Punjab in 1837 A Hindu Yogi was there, by his own request, buried alive in a vault for forty days in the presence of Ranjit Singh and Sir Claude Wade , his eyes, ears and every orifice of his body having been first stopped with plugs of wax Dr McGregor, the then residency surgeon, also watched the case Every precaution was taken to prevent deception English officials saw the man buried, as well as exhumed, and a perpetual guard over the vault was kept night and day by order of Ranjit Singh himself At the end of forty days the disinterment took place The body was dried up like a stick, and the tongue, which had been turned back into the throat, had become like a piece of horn Those who exhumed him followed his previously-given directions for the restoration of animation, and the Yogi told them he had only been conscious of a kind of ecstatic bliss in the society of other Yogis and Saints, and was quite ready to be buried over again" (*Buddhism* by Sir Monier Williams, pp 243-244)

functions What Prof. Stout calls 'objective co-ercion' as a determinant of belief is but the effect of experience on it. What contradicts experience can never be believed in. "Objective co-ercion," as he says, "is the very essence of belief." (*Manual*, p. 567.)

(2) vivid and distinct ideas,

(2) Among ideas, those that are more vivid and distinct impress us more than those that are faint and indistinct. Thus, *lively images* in dreams and even in waking life tend to induce belief; and every one knows the fascination of glowing descriptions and vigorous harangues.

(3) contiguous bond,

(3) *Contiguous association* also often begets belief in the connection between the things associated together. *Repetition* and *uniformity* of experience are the main conditions here, and uniformity is of greater importance than the mere number of repetitions. If, for instance, we observe a coincidence five times without any failure, we have a more firm belief in the conjunction than if we observe, say, ten cases for and one against. This implies that the absence of rival ideas or suggestions is essential to firm belief. In the case of dreams, fixed ideas, and hypnotic states, for example, the strength of belief is determined mainly by this circumstance.

and (4) verbal suggestion

(4) *Verbal suggestion* also influences belief. The association between language and thought is very strong. Words naturally suggest to our mind corresponding ideas. If, therefore, a certain statement be repeated over and over again, that has the effect of gradually inducing belief in the corresponding objects or relations. As language is a

social product, the influence of language on belief illustrates but the influence of society or authority on the individual mind. We believe, accordingly, in historical testimony and the testimony of our contemporaries, imbibing even the superstitions and prejudices current in society. Thus, Prof. Stout, referring to "an objective factor of paramount importance," mentions that "The beliefs of the individual are to an immense extent shaped and determined by the beliefs current in the community in which he lives." (*Manual*, p. 573)

(II) **Emotional Factor** Feelings often influence our belief. What is called Superstition is nothing more than the injurious effect of feeling upon belief. It must be remembered here that the influence of feeling on belief is mediate, that is, through the connected ideas and representations. A strong feeling helps to give vividness and distinctness to the connected ideas, and these, in their turn, as explained above, induce belief. It may be mentioned in this connection that, besides the influence of the special emotions on belief, there is the influence of the general emotional temperament or of the comparatively stable emotional mood on it. Thus, not only do we find that fear, for the time being, induces belief in the injurious character of an object, but we find also that the timid are generally disposed to see danger before their eyes.

(III) **Conative Factor** We find both (1) the active tendency and (2) the volitional choice conditioning our beliefs.

(r) *Whatever we are strongly inclined to do, we*

II. Emotional Factor
includes the influence of the special feelings and of temperament and mood.

III Conative Factor
includes the influence of active tendencies

and of
personal
choice

believe in, and if we are disinclined to do something, we generally disbelieve in it. A vigorous child, for example, is rash, because overconfident, a sickly child, on the other hand, is cautious, because diffident. This is regarded by Prof. Stout as 'the subjective factor' of belief—"the keen urgency of practical needs" "Where there is no interest to be satisfied," he writes, "there will be no tendency to form a belief. The mind will occupy itself only with those questions which lie in the line of direction of its own activity" (*Ibid.*, p. 568) He, accordingly, holds that "All belief involves objective control of subjective activity. The nature of the object thought about enforces certain ideal combinations to the exclusion of others. But this objective control is not absolute, it is conditional. It depends upon the end towards which mental activity is directed" (*Ibid.*, p. 562.) Thus, the belief of the scientist would be controlled by his knowledge of general principles, while that of the practical man, by what is feasible.

(2) We should remember also that *our choice often influences our belief*. We are generally disposed to believe that what we have chosen is valid and what we have rejected is wrong. Hence the undue confidence in our own decisions, judgments, and theories.

It should be noted in this connection that the relation of belief to activity is a reciprocal one. If activity induces belief, belief also induces activity. Prof. Bain makes reference to activity as the very basis of belief "The relation of Belief to Activity,"

Interaction
between
Belief and
Activity

he says, "is expressed by saying that what we believe we act upon." (*Mental Science*, p. 372) Thus, if we believe that the fire burns, we will not put our hands in it; if we believe a man to be dishonest, we will not deal with him. Belief is thus, as Prof. Stout observes, "at once a condition of activity, and conditioned by activity." (*Manual*, p. 565)

"If faith produce no works, I see

That faith is not a living tree

Thus faith and works together grow,

No separate life they e'er can know." (*H. More*)

We have read that a judgment, involving predication always involves belief. When, however, a judgment is false we are said to disbelieve in it. Disbelief, though apparently the reverse of belief, is really—psychologically—the same as belief. Both belief and disbelief indicate a state of assurance or conviction. When, for example, an atheist disbelieves in the existence of God, he may be said to believe in His non-existence. There is as much assurance involved in belief as in disbelief. Assurance in the one case is connected with the acceptance, and in the other, with the rejection of a statement. Psychologically belief precedes disbelief; affirmation, negation. From the psychological stand-point, the opposite of belief is not disbelief but doubt. *Doubt* implies uncertainty, hesitation,—being pulled, as it were, in two opposite directions. There are, evidently, grades of belief and disbelief. Belief and disbelief being the two extremes, the intermediate situation, when we are neither in a position to believe nor in a position to disbelieve,

Disbelief is a form of Belief, the opposite of which is Doubt.

Psychologic-
ally Belief
precedes
Disbelief and
Doubt.

indicates doubt. And, between the two extreme limits of perfect belief and disbelief, there may be various grades of them as when we are inclined more or less to accept or reject a proposition.

§ 3 Volitional Regulation of Belief.

The preceding account shows how belief is actually determined by the several factors of our mental life called forth under pressure of circumstances. But, as we have seen (*Vide* Chap VI, § 11 and Chap XVII, § 5), we have in us a constitution which enables us to regulate our experience, instead of being simply determined by it. By the direction of attention and regulation of our ideas we can control thought, feeling, and activity and so govern our belief. Thus, in logical or judicial belief, we keep out of our mind all irrelevant or disturbing influences and allow ourselves to be led only by the points bearing on the issue. Our first beliefs are often hasty, vague, and incorrect. Careful observation and a cautious examination of circumstances render our earlier beliefs more and more accurate. Three prominent circumstances secure this result —(1) Reduction of a vague belief to a definite propositional form, when we clothe our ideas in language, we, so to speak, objectify them, and thus we have a means of carefully examining their correctness (2) To generalize our beliefs · when a vague belief is reduced to a general form, we are in a position to verify its correctness.

We may control Belief through the regulation of ideas, feelings, and activity.

Circumstances favouring the correction of crude belief
(1) Reduction of a belief to a definite propositional form

(2) Generalization of beliefs

(3) Comparison of belief with common belief

of mankind. The chances of individual error may be excluded in this way, but here we must carefully remember that we should neither blindly accept a common belief, rejecting a well-founded and well-verified personal conviction, nor should we set a higher value on personal conviction treating lightly the consolidated experiences of mankind. We must be open to conviction, but not disposed to blind acquiescence.

It is not out of place to mention here that the opinion of an individual is to a great extent shaped by the influence of the community. The common mind works on the individual mind through tradition and education. The very language which a child learns imperceptibly imbues the mind of the child with the associated ideas prevailing in society. With the advance of experience and knowledge it is incumbent upon an individual to examine or verify the beliefs which he thus thoughtlessly acquires.

The *psychological conditions* of belief, mentioned in the last section, merely explain the circumstances which actually influence it—whether valid or invalid. The *logical conditions*, on the other hand, explain the circumstances which ensure the correctness of belief. These conditions may be indicated thus —(1) The circumstance that renders a fact credible or incredible is its being consistent or inconsistent with the fundamental principles of thought and well-established generalizations. If, for example, it be stated that a man is present at the same time in two different places (which is incon-

One should
be open to
conviction
and disposed
to verify the
opinions
derived from
others

*The Logical
Conditions
of Belief*

(1) Consistency with the laws of thought and well-established inductions,

sistent with the law of contradiction) or that a man hangs in mid-air without any support (violating gravitation), we are to treat the statement as false.

(2) computation of probabilities in case of conflicting evidence,

and (3) the provisional rejection of what cannot by any means be proved

Belief when proved is called Knowledge.

Points of
re
and
re

(2) When a fact with a certain amount of evidence in its favour is opposed, not to a fundamental principle or an established induction, but to an approximate generalization or probability, the case is one of computation of probabilities. If, for example, it be said that it will rain this afternoon, the truth of the remark is to be ascertained by a computation of probabilities.

(3) The assertion of a fact wholly beyond the reach of evidence, for or against, is to be held as untrue. As Bain says, if it be held by some that the centre of the earth is occupied by gold, we are to treat the statement as false.

We may notice in this connection the distinction between Belief and Knowledge. Belief when proved and well-verified develops into knowledge. Belief is essentially prospective in character. Even when I say 'I believe the serpent to be a cobra,' 'I believe the tree before me to be a pine tree,' there is reference to future verification from certain signs I am led to think that the animal or tree belongs to a particular species, which is expressed as my 'belief' or conviction. When, however, the fact is proved beyond dispute, then it is no longer a matter of belief but of knowledge. Thus, knowledge is more illumined and certain than belief. The points of distinction may briefly be indicated thus —(1) Knowledge usually implies objective certainty, belief, subjective assurance;

the object of knowledge is the same to all, while there is much room for difference with regard to the object of belief. Hence, at least modesty requires that we should speak of believing instead of knowing when we differ from others. (2) Knowledge is thus clear ; it is illumined and definite. Belief, on the other hand, is comparatively obscure it is comparatively dark and indefinite. (3) There is more of evidence and proof in knowledge than in belief The former consequently is more conclusive than the latter, and hence is calculated to compel belief in others. (4) There is a marked emotional and conative colouring in belief, which is replaced by settled conviction or acceptance of fact in knowledge (5) The sphere of belief is much wider than that of knowledge. Belief extends to the distant, the past, the future, and the unknown, while knowledge is comparatively restricted to what is clearly established—specially by observation and experiment. Hence the usual opposition between Faith and Reason.

"True faith and reason are the soul's two eyes
Faith evermore looks upwards and descries
Objects remote , but reason can discover
Things only near—sees nothing that's above her
They are not matches—often disagree,
And sometimes both are clos'd, and neither see "

(Quarles)

§ 4. Abnormal Tendencies in Normal Life. Belief being a primitive fact of our conscious life, it colours more or less all mental exer-

The difference between the normal and the abnormal mind is due to the influence of right or wrong belief.

The perverting influence of wrong belief is illustrated in illusions, hallucinations, and delusions

A concrete illustration of hallucination

cises And the difference between the normal and the abnormal mental condition lies chiefly in the rightly placed or misplaced belief In normal conditions belief is duly regulated and so based on a proper estimate of facts , while in the abnormal conditions belief is rather overpowered by the dominating influence of some feature or quality And the degree of mental abnormality generally depends on the degree or extent of this dominating influence. Thus, illusions, hallucinations, delusions indicate but different grades of abnormal psychosis, which culminates in insanity. (*Vide Chap XI, § 5*) The extent to which belief, thus overpowered, influences experience and conduct is well illustrated in these phenomena The following instance of hallucination may be of interest to the student in this connection —

A Sicilian shoemaker "was offended by a lady, who called him a drunkard Indignant at this he hurled abuses at that lady in return, and she thought it well to avenge herself by referring the matter to four local peasants, of whom he was so much afraid that he remained hidden in his own house for three days One of these nights the devil appeared to him in a dream and said 'Take your choice , either cut off your right hand or be murdered by the four men' In order not to lose his life and soul, he thought, still dreaming, that he would content himself to live minus one hand , then, having awakened, he continued to see the devil beside him, enjoining him to cut off his hand Terrified by the vision, he was uncertain whether to execute the order or not, either through the inhibition produced by fear or on account of the pain he would have to suffer. He

raised an objection to the diabolical vision, from which he received a further injunction, with the assurance that he would suffer no pain. It was then that he gave a look to an old saw, 'and, aided by the devil himself,' to use his own words, he sawed off his hand without feeling any pain, for his arm seemed 'as though made of wood.' As soon as he had completed the mutilation of his hand he felt pain, and, terrified by the amount of blood he was losing, attracted attention by his loud shrieks" [*Text-Book of Psychiatry*, Bianchi (Eng. trans.), p. 211.]

What is known as hypnotism illustrates also the abnormal influence of belief. Here belief is induced by the suggestions of the operator, who thereby regulates the subsequent conduct of the patient. And such is the potent influence of will even on organic disorders that a system of cure has been started and widely practised at Nancy and other European towns, which is based on hypnotism and known as 'cure by suggestion.' The following cases reported by Dr. Tuckey in his *Psycho-Therapeutics* may be cited in this connection —

Mdlle X—, aged 27, an intelligent lady who had enjoyed good health and spirits, and was free from hysteria until August, 1885, at that time she had a disappointment which changed everything. In February, 1886, she consulted Dr. Bernheim. She had then suffered for months from complete want of appetite, sleeplessness, giddiness, especially on lying down, terrible dreams when she did sleep, and slight muscular tremors in the limbs, so that it was not easy for her to keep her hand steady. She had been treated with bromides and anti-spasmodics without success. He hypnotized her and she slept easily and profoundly. He suggested the disappear-

Abnormal
influence of
belief is
illustrated in
Hypnotism.

Concrete
illustrations
of 'cure by
suggestion.'

ance of all her troubles, and after two séances all the morbid symptoms had disappeared, she slept well, and ate with appetite Her spirits were as good as ever Dr Bernheim adds that she remained well

On June 9th, 1888, M F—, a youth aged 16, was brought to Dr Voisin at the Salpetrière From the age of six or seven he had been incorrigible Not only did he tell lies, steal, play truant, and behave ill generally, but he also tried to corrupt all the children with whom he came in contact He became worse and worse as he got older, and was turned out of several institutions into which his mother had procured his admission Dr Voisin endeavoured to hypnotize him, but was not successful until the third seance Once asleep, suggestions of moral reform were made He began to improve at once, and by July 6th the youth was absolutely transformed The wish to do evil first disappeared, and was then replaced by a desire to do right His insubordination and disobedience had given place to a wish to please his mother He expressed to Dr Voisin the happiness he felt at being thus changed He saw the doctor again on October 6th, six weeks after the discontinuance of the treatment, and the cure was maintained

It is a well-known fact that our mental condition affects our organic, and this is prominently illustrated in the case of belief

"It is told," writes Dr. Tuckey, "that when Sir Humphry Davy was investigating the properties of laughing gas—as nitrous oxide was then called—he proposed to administer it to a man who was suffering from *the doloureux*, but before doing so he tried his temperature by putting a thermometer into his mouth The man took this instrument for some new and subtle remedy, and in a few minutes exclaimed that the pain was

The influence
of belief
brings out
how great is
the influence
of mind on
body.

A concrete
illustration

cured. The same belief in the efficacy of the thermometer remains to this day among the uneducated, as a friend of mine found to his cost when he was hospital-clerk to a well-known physician. It was his duty to take each morning the temperature of every patient; but on one occasion, being pressed for time, and knowing by experience that a certain patient's temperature was always normal, he saved a few minutes by leaving it untried. Later in the day, when the physician asked this man how he felt, he replied that he was much worse, as might be expected considering the way in which he was neglected. On inquiry it came out that the potent charm of having the glass tube in his mouth for three minutes had been omitted, and my friend got a reprimand."

Let us conclude this section by mentioning here some reported cases of double and multiple personality which illustrate abnormal conditions of mind controlled by belief and induced generally by organic disturbances.

The history of Mary Reynolds was reported by Dr S Weir Mitchell to the College of Physicians of Philadelphia in 1888. The subject was a very impressionable girl. A nervous shock resulted in the development of double personality, which continued for several years, her normal personality, as in the cases of the fictitious Dorothy and the real Miss Beauchamp, being restored by hypnosis.

Miss Reynolds's family moved from England to the wilds of western Pennsylvania during the early part of the eighteenth century. She is said to have possessed an excellent mental capacity and to have enjoyed fair opportunities to acquire knowledge. Besides the domestic arts and social attainments, she had improved her mind by reading and conversation. Her memory was capa-

The phenomena of double and multiple personality illustrate also the influence of belief
Concrete illustrations of double personality.

cious and well-stocked with ideas She was sedate and reserved, and tended to melancholy When eighteen years of age she had hysterical fits, and after one of these attacks was blind and deaf for six weeks About three months later, after having almost wholly recovered her normal health, she fell into a profound sleep, which lasted about twenty hours, upon awaking from which memory had completely fled, and she was to all intents and purposes a being for the first time ushered into the world Her parents, brothers, sisters, and friends were not recognised , the scenes to which she was accustomed —the house, hills, field, forest, vales, and streams—were new She began to learn, but always when in this new personality she looked upon those she had once known as strangers and enemies, among whom she was by some remarkable and unaccountable means transplanted, though from where she had not the remotest idea She learned to read and write, but her handwriting was not the same as that of her primary state.

Instead of being melancholy, she was cheerful to extremity, buoyant, and sociable Formerly taciturn and retiring, she was now merry and jocose, extravagantly fond of company, and enamoured of nature

Six weeks after the appearance of her second personality she fell into a protracted sleep, from which she awoke in her primary state, recognizing the members of her family, remembering what she had planned as though but yesterday She was absolutely without memory of the events of existence of her second personality, and was greatly surprised at the change that occurred in nature over night

Remaining in her primary state for a few weeks she again fell into a sleep from which she awoke in her secondary personality, now beginning life where she had left

it weeks ago when she re-entered the life of her primary self, having now only the knowledge of her secondary state. Her vivacity, wit, and humour were now so great as to make her company very much sought, but her love of playing tricks upon others often led to much trouble Alternations in personality went on for fifteen or sixteen years, the secondary personality tending to remain for increasingly longer periods, when she assumed the second personality , continually existing in this state for the remaining twenty-five years of her life without the least knowledge of her other self beyond what had been told her

Another case, in some respects similar to that of Miss Reynolds, and known as Felida X, was studied by Dr Azam, and has become world-renowned Felida came under Dr Azam's observation when fifteen years of age She had had many hysterical and other troubles, which led to her becoming a timid, serious, grave, and melancholy individual who was burdened with anxiety and pain. Appearing to faint away for a few moments, she would awake, having an entirely different personality Her pain, anxiety, and other mental and physical infirmities had vanished, and she was gay, vivacious, and coquettish and morally perverted She remembered the incidences of her normal life, as did Sally of the life of Miss Beauchamp , but when in her primary state, like Miss Beauchamp and Miss Reynolds, she had no knowledge of her secondary state These personalities alternated with great frequency , but the primary state lasted for shorter and shorter periods, and was ultimately crowded out, as it were, by the secondary state, as in the case of Miss Reynolds, which thereafter constituted her constant personality

It is possible that in the cases of Miss Reynolds and

Felida the personality which at first was recognised as the secondary personality was in reality the primary personality or normal state, and hence that the personality that was ultimately established was in reality not the secondary, but the primary.

In these cases of dual personality the nature of the change in the individual's moral character may differ very widely. We find in the instances of Dr. Jekyll and Mr Hyde a form of moral monstrosity that is manifested in an inherent maliciousness and a demoniacal pleasure in the infliction of torture on others—a form of immorality that arouses hate, fear, and loathing. In the cases of Backy, Sally, Mary Reynolds, and Felida there were forms of moral perversion that led to the annoyance of themselves or others, of such a kind as to engender sympathy. The most pathetic among these instances of marked moral alienation was that of a young woman, recently a patient in Philadelphia, who in her natural state was the personification of all that is attractive, lovely, and sublime in young womanhood, and who at times awaking from a deep sleep would have an entirely different personality, with manifestations of moral monstrosity that vied in vileness with those of the denizens of the tenderloin.

In many cases the secondary personality appears but once, and sooner or later gives place to the normal. An interesting instance belonging to this category was reported by Dr. Osborne.

The subject was a man of middle age in admirable health very fond of his family, and not known to

have any eccentricities, morbid tendencies, or bad habits. For years he had resided in a town near Philadelphia and by strict application to his business, which was that of a tinsmith and plumber, had been successful and accumulated some means. One dull and gloomy Sunday in November he mysteriously disappeared. He had remained in the house, mainly engaged in reading and playing with his younger children until 4 o'clock. Arising from a couch upon which he had been reclining and reading he said that he was going out for a short walk and a little fresh air. Leisurely, quietly, and apparently perfectly normal, he stepped outside of the door to disappear as mysteriously as though the earth had swallowed him.

Two years later in a tin shop in one of the southern towns where a number of men were engaged at work, one of the men suddenly dropped his work, and pressing his hands to his head in a dazed way, exclaimed. "My God, where am I? How did I come here? This is not my shop. What does it mean?" At first the men were disposed to laugh and jest at the man who for several months had been so reserved and sober, and who had worked so quietly by their side, but of whose history they knew nothing. Seeing his changed expression, his face wet with perspiration, and his nervous twitchings, and hearing his piteous appeals, they became startled and called him by a name that was strange to him, yet the one he had given them. Trembling with suppressed emotions he made his way to the proprietor, and with some difficulty made the proprietor understand his true condition and the story of his northern home, family, and prosperous business, which, as it seemed to him, he had left but the afternoon before. Under the assumed name he had been known and paid, but the entire period from the time

he left home until the present was a complete blank After ascertaining the whereabouts of his family he joined them, and from last accounts was living the life of his normal self.

**Concrete
illustrations
of multiple
personality**

A variable number of different personalities may develop in a given individual, the person living as many different lives, each being partly or wholly ignorant of the existence of the other

Thus, a man by the name of Monks, a son of wealthy people who lived in London, lived four different lives, mingling in four different classes of society and having four different sets of friends As a conscientious clerk he was quiet, retiring, deferential, cared little for the society of women, did not smoke, and was extremely exemplary in his habits As a professional bicycle rider he was loud-voiced, boastful, swaggering, profane, a smoker, and a drinker As a society man he was a fashion plate in his attire, of graceful ease, and extremely popular with the ladies, four of whom in different parts of London he was engaged to marry As a burglar he was most skilful and daring, and it was only after years that shrewd detectives ran him down and, not knowing of his peculiar mental state, had him committed to prison as a common criminal

A case of a man having six personalities was, reported by Bourru and Burot In the first personality he was talkative, violent, arrogant, rude, disrespectful, anti-religious, embarrassed in speech and with limited though precise memory. In the second personality he was reserved, gentle in speech, orderly, respectful, without religious opinion, and his speech was easy and pronunciation clear, and he had little memory of the past In the third personality his state was very much like the second, but his memory limited entirely to the third

state In the fourth personality he was timid, sad, well-mannered and his intelligence was obtuse, his memory confused and his language incorrect and childish In the fifth personality his mental state reverted to the period when he was fourteen years of age He had the timidity, language, and attitude of a child and was without memory of any of the incidents of his life subsequent to this time In the sixth personality he was a proper young man, a soldier of the marine corps, and his memory embraced his entire life excepting the period known as his fourth state

In a young girl as many as ten personalities were developed in twenty months, and in one of them she reversed everything—to her white was black, heat was cold, etc., and even her writing was reversed

Among all of these remarkable cases of dual personality none is, on the whole, so interesting and so instructive as that of the Rev. Thomas C. Hanna which was carefully studied by Drs Sidis and Goodhart ("Multiple Personality," 1905), and no summary, however brief, would be adequate without at least some reference to this extraordinary record. The differences in the personal traits, the complete loss of memory in the secondary state, the gradual child-like acquisition of knowledge, the child-like wonderment of what was seen and heard, and the ultimate recognition of the existence of two personalities, with their separate lives and their final blending, form one of the most absorbing stories in psycho-physiological literature

The Rev. Mr. Hanna was born in 1872 and had an exceptionally good family history and all the advantages of an excellent education and was a good scholar. He

entered the Manual Training School of Philadelphia and his high scholarship gained for him admission as a free student to the Architectural School of the university there During his stay there his sense of religious conviction became so awakened that he gave up his studies for those of theology; and in order to prepare himself for the practical duties of the ministry he took up missionary work

He had an earnest, ardent, sympathetic and impulsive nature, was well-balanced, and possessed a strong will combined with perfect self-control We find him at twenty five years of age the pastor of a church at Platteville, Conn

At 7 o'clock one Thursday evening, when attempting to alight from a carriage, his foot caught in a lap robe and he fell head foremost, striking his head, and, when picked up a few moments later, life seemed almost extinct In this state he remained for two hours, then began to move, looked around in a bewildered way, rose from the bed, and in a dazed manner attempted to push aside one of the physicians His three attendants, believing him to be delirious, seized him and attempted to force him back to bed, but Mr Hanna's strength, while ordinarily excellent, now seemed Herculean, and his opponents were readily worsted Finally, he was overcome and securely bound with straps, for fear of his injuring himself or others While now having the physical strength of an exceptionally robust man, his mind was a blank, as void as though he had just been ushered into the world He saw, smelt, tasted, and touched, but these senses conveyed absolutely no meaning excepting as to mere light and darkness and colour Objects, space and time were without intelligent perception There was no perspective sense, every-

thing, irrespective of distance, appeared close to his eyes, giving him the impression of one great picture An object seen through the window appeared as near as his out-stretched hand, and he would not have had any hesitancy in attempting to grasp the moon.

Sensations of hunger gave rise to great distress, but without arousing the least knowledge of the reason Food placed in his mouth did not excite any sense of its use. He made no attempt to either masticate or swallow it, and in order to feed him it was necessary to force food back into the pharynx to cause reflex or involuntary swallowing movements

Bodily movements alone at first attracted his attention, and he learned in time to distinguish between movements of his own body and those of other people and things He gazed at moving objects with the wonderment of the young infant, and, after he had learned to associate movements with life, he thought all moving objects living things, the swaying of the branches of a tree appearing to him movements of living creatures, and the horse and carriage a single living object

He heard conversation, or noises as he termed them, and in time recognised that by their means people understand each other , and, although he had not the least idea of the meaning of a single word, he thought he could learn to communicate with others by repeating the noises he had heard Hence, he would again and again repeat in his mind these sounds, and then repeat aloud words and sentences he had committed to memory , but he was surprised to find that he was not understood, and for a time he became discouraged. Not knowing the meaning of his utterances, his speech was, of course, utterly unintelligible. It was not until the lapse of two days that he learned the real meaning of a single word.

By this time he was able to recognise time by the difference between daylight and lamp-light and by the recurrence of the three daily meals. His education may now be said to have been fairly started. He began to understand, speak, read, and learn to walk.

Owing to his mental faculties having been highly developed, and to his inherent capacity for rapidly acquiring knowledge, he learned with amazing rapidity, even to the attainment of accomplishments that were unknown in his normal life. Thus, he learned in a few hours to play the banjo, an instrument with which he had had absolutely no experience.

For nearly two months he remained in this mentally childlike state, gradually but with extraordinary rapidity acquiring the elementary knowledge common to early childhood, having absolutely no knowledge of his existence before the accident or of his actual relations to the people about him, and developing during this period an entirely distinct personality, as different from his normal as the personalities of two people differ. His memory was so keen during and after this period that upon his ultimate recovery he was able to give a minute account of his experiences and thus unfold a remarkable history of incidents such as presumably are attendant upon the education of the infant and very young child.

The period of second personality lasted for seven weeks and was ended by his falling asleep and awaking as the Rev Mr Hanna, he now having absolutely no remembrance of what had transpired since the moment of the accident. He thought that the accident had occurred the evening previous, and when told that it was seven weeks ago, he thought the speaker jesting and the story a huge joke.

He had been in New York for sometime, but he failed to recognise his surroundings, and the people who had been in constant attendance for weeks past were absolute strangers, excepting his brother, the only one he had known in his normal state.

In the midst of the conversation he suddenly exclaimed, "What a funny taste in my mouth ; you must have been feeding me on tobacco". Before going to sleep he had smoked a cigarette ; but, not having used tobacco for many years and not having any knowledge of the events of the previous evening, he could not in any way account for the taste. When asked how he felt, he said "I feel just like Rip Van Winkle". After remaining in his primary state for three-quarters of an hour he fell asleep, awaking in his second personality, his mental life beginning where it had ceased upon falling to sleep the night before, he not having a vestige of knowledge of what had transpired between the two periods of sleep.

From this time on there followed frequent alternations of the primary and secondary personalities, the transition from one to the other occurring without obvious cause and with increasingly greater frequency. The alternations were for a time wholly unknown to Mr. Hanna, excepting in so far as he was informed by others, and, owing to the very different memories of the two states, more or less serious embarrassments were caused.

With the passing of time the frequent alternation of personalities, the gradual acquirement of knowledge during the periods of his second personality, and the increasing information received from those about him of his mental dual existence, there came a moment when he clearly recognised the existence and differences of two personalities or mental lives. Struggles of the two

for the possession of the body occurred, at which times Mr. Hanna would be in a dazed state, and in neither one nor the other personality. What went on in Mr. Hanna's mind was quite accurately remembered by him and is well set forth in a statement made by Mr. Hanna to Drs. Sidis and Goodhart.

Mr. Hanna stated that while lying upon a lounge in one of these dazed conditions he was engaged in one of the most intense struggles he had ever experienced. The two personalities, the primary and secondary states, rose simultaneously and confronted each other. Each of them was the "I", still they differed from each other. The memories seemed to be those of two different persons, yet he recognised that both were his. He could not choose one because it differed from the other, nor could the two be joined. The struggle produced great perplexity and perturbation. He felt that both were his, yet it seemed impossible to unify them. One could not be abandoned, because both came up constantly before him as though exclaiming, "We are one, though different." It seemed as if each said to the other, "Thou art a mortal foe, and yet thou art bone of my bone and flesh of my flesh." Each, it seemed, had for a time tried to crush or suppress the other. The question in his mind was which of the two lives he should reject, and then the struggle was not so much to choose one as to forget the other, both persisting in his consciousness as though each memory was stronger than his will. Each memory seemed to be within the same physical being, as if there were two bodies alike, like twins, that had lived entirely different lives, or like twins of the same body with tastes, faculties, and natures very similar. The time came when he realized that he must take one or the other personality. The decision was difficult and the mental struggle great,

but he finally decided to adopt both, because of the fear and anxiety that the struggle would be repeated again and again, and that the mental agony of these recurrences would be too great to endure. And so in time the two personalities, differing so much, were fused into one healthy, normal, mental individual—into one Ego, or I, the present Mr Hanna.

§ 5 The Normal and the Abnormal Life Having referred in the preceding section to the abnormal tendencies in normal life, which illustrate forcibly the influence of mind on experience as well as on our bodily organism, let us next consider how organic conditions or defects in their turn affect our mental life. Some of the instances of double and multiple personality given above tend also to prove this fact. Abnormal mental life, due to defective organic conditions, is prominently illustrated in different forms of mental derangement and imperfection. Thus, instances of insanity (general and special), idiocy, imbecility, and defective mental growth are in many cases traceable to nervous disorders. And inadequate mental development is not infrequently due to defects in nervous structure, central or peripheral. Persons born blind or deaf or those who lose some of their sense-organs very early in life have their mental development retarded to a great extent. Thus, the blind are not only devoid of all idea of colour, but are deficient also in their conceptions of form and magnitude. But these defects are often to a great extent made up by Nature by excellences in other directions. Thus,

Abnormal life reveals to what extent the mind and the body influence each other

Insanity, idiocy, imbecility, and defective mental growth are often traceable to nervous disorders or defects

Nature generally tries to compensate for certain defects by other excellences.

the blind or the deaf are generally known to possess very acute smell and discriminative touch.

Illustrations
of blind men,

"Mr. Saunderson, the blind mathematician, could distinguish by his hand, in a series of Roman medals, the true from the counterfeit, with a more unerring discrimination than the eye of a professed virtuoso, and, when he was present at the astronomical observations in the garden of his college, he was accustomed to perceive every cloud which passed over the sun. This remarkable power, which has sometimes been referred to an increased intensity of particular senses, in many cases evidently resolves itself into an increased habit of attention to the indications of all those senses which the individual retains. Two instances have been related to me of blind men who were much esteemed as judges of horses. One of these, in giving his opinion of a horse, declared him to be blind, though this had escaped the observation of several persons who had the use of their eyes, and who were with some difficulty convinced of it. Being asked to give an account of the principle on which he had decided, he said it was by the sound of the horse's step in walking, which implied a peculiar and unusual caution in his manner of putting down his feet. The other individual, in similar circumstances, pronounced a horse to be blind of one eye, though this had also escaped the observation of those concerned. When he was asked to explain the fact on which he formed his judgment, he said, he felt the one eye to be colder than the other. It is related of the late Dr Moyse, the well-known blind philosopher, that he could distinguish a black dress on his friends by its smell, and there seems to be good evidence that blind persons have acquired the power of distinguishing

colours by the touch In a case of this kind, mentioned by Mr Boyle, the individual stated that black imparted to his sense of touch the greatest degree of asperity, and blue the least. Professor Upham, of the United States, mentions of a blind girl in Hartford Asylum, that when the baskets of linen are weekly brought from the laundress, she selects her own articles without hesitation, however widely they may be dispersed among the mass Dr Rush relates of two blind young men, brothers, of the city of Philadelphia, that they knew when they approached a post in walking across a street, by a peculiar sound which the ground under their feet emitted in the neighbourhood of the post ; and that they could tell the names of a number of tame pigeons, with which they amused themselves in a little garden, by only hearing them fly over their heads I have known several instances of persons affected with that extreme degree of deafness, which occurs in the deaf and dumb, who had a peculiar susceptibility to particular kinds of sounds, depending apparently upon an impression communicated to their organs of touch or simple sensation They could tell, for instance, the approach of a carriage in the street without seeing it, before it was taken notice of by persons who had the use of all their senses An analogous fact is observed in the habit acquired by the deaf and dumb of understanding what is said to them by watching the motion of the lips of the speaker Examples still more wonderful are on record, but certainly require confirmation. A story, for instance, has been mentioned, in some of the medical journals, of a gentleman in France, who lost every sense, except the feeling of one side of his face , yet it is said that his family acquired a method of holding communication with him, by tracing characters upon the part which retained its sensation " (Abercrombie, *Intellectual Powers*, pp 39—41)

The well-known cases of Laura Bridgman and Helen Keller illustrate to what extent training and personal effort can develop mental powers in spite of great physical defects. As the cases are of considerable psychological interest, brief accounts of them are given here as reported in the periodicals

of Laura
Bridgman,

Laura Bridgman—was born in Hanover, New Hampshire (U S) in 1829. For a few months after her birth she was a sprightly infant with blue eyes, but as she was of a weakly constitution, her parents had little hope of rearing her. When she was eighteen months old, her health improved. But she caught the small pox, and lost the sight of both her eyes through it. At the same time she lost the sense of hearing. She was, therefore, at two years of age, blind and deaf. But these were not all her misfortunes. A bad fever took hold on her, and in a few months her power of smell was almost destroyed, and her sense of taste was much blunted. She was also so greatly reduced in strength, that it was a year before she could walk without help, and two years before she could sit up all day. It was not until she was four years of age that her health was entirely restored, and even when that was so, her condition was pitiable—deaf, dumb, blind, and able only imperfectly to taste and smell. Every means of communication with the outside world might be said to have gone, except feeling. These calamities having beset her when she was an infant of two years of age, she could remember neither seeing nor hearing anything, and as her eyes were completely destroyed, any hope of restoring her sight was out of the question.

What a situation was hers! The darkness and the silence of the tomb were around her. No mother's smile

called forth her answering smile. No father's voice taught her to imitate his speech. Her brothers and sisters were but forms which resisted her touch, and which differed not from the furniture of the house except in warmth and in the power to move about, and not even in these respects from the dog and the cat. However, as soon as she could walk, she began to explore the room, and then the house. She became acquainted with the form, the weight, and the heat of every article she could lay her hands upon. She followed her mother, and felt her hands and arms as she worked in the house, and copied her as best she could. She even learnt to sew a little and to knit.

Dr Howe at this time heard of her, and hastened to Hanover to see her. He persuaded the parents to give her to him, and he placed her in the Perkins Institution and Massachusetts Asylum for the Blind, at Boston.

For a while she was much bewildered by the change in her surroundings, and after waiting for about two weeks, until she knew something about her new house and companions, an attempt was made to teach her signs by which she could interchange thoughts with others. The first lessons were imparted by taking articles in common use, such as knives, forks, spoons, keys, *etc.*, and pasting upon them labels with their names printed in raised letters. These she felt very carefully, and soon learnt that the crooked lines *SPOON* differed as much from the crooked lines *KEY*, as the spoon differed from the key in form. Then small labels, with the same words printed upon them, were put into her hands, and she soon observed that they were similar to the ones pasted on the articles. She showed that she knew this resemblance by laying the label *KEY* upon the key, and the label *SPOON* upon the spoon. She was encouraged by

being patted on the head In this way she learnt to place their proper labels upon many articles

After a while, instead of labels, the separate letters of the labels were given to her on little bits of paper They were placed side by side so as to spell *SPOON, KEY, BOOK, etc.* Then they were mixed up in a heap, and a sign was made for her to arrange them herself so as to spell the words *SPOON, KEY, etc.* And she did so For a time she did this without any interest, merely copying her teacher But one day the truth flashed upon her She felt that here was a way by which she could herself make up a sign of anything that was in her own mind She was no longer like a dog or a parrot Her mind began to work with her fingers

A set of metal types was now given to her with the different letters of the alphabet cast upon their ends, also a board, in which were square holes, into which holes she could set the types, so that the letters on their ends alone could be felt above the surface. Then, on any article being handed to her—for instance, a pencil or a watch—she could pick out the proper letters and arrange them on her board, and read them with pleasure She was exercised for several weeks in this way, until she had learnt a large number of words She was then taught how to represent the different letters by the position of her fingers instead of having to use the board and types She learnt this speedily and easily, for her intellect had begun to work in aid of her teacher

Within three months of her arrival at Boston she had learnt the manual alphabet, as used by deaf mutes This was the method by which she was taught Her teacher gave her a new object—for instance, a pencil She let the child examine it, and get an idea of its use She then taught her how to spell it by making the signs of the

letters with her own fingers. "The child grasps her hand, and feels her fingers as the different letters are formed. She then holds up her tiny fingers, and spells the word in the manual alphabet. Next she takes her types and arranges her letters; and to make sure that she is right she takes the whole of the types composing the word, and places them upon the pencil, or whatever the object may be."

The whole of the following year was passed in satisfying her eager inquiries for the name of every object that she set hands on, in exercising her in the use of the manual alphabet, and in the proper care of her health. At the end of the year a report of her case was made from which the following is an extract —

"It has been proved beyond a doubt that she cannot see a ray of light, cannot hear the loudest sound, and never uses her sense of smell, if she have any. Of beautiful sights and sweet sounds and pleasant odours she has no knowledge. Yet she seems as happy and playful as a bird or a lamb. The employment of her mind, or the gaining of a new idea, gives her immense pleasure which is plainly marked in her face. She is fond of fun and frolic, and when playing with the rest of the children, her shrill laugh sounds loudest of the group.

"When left alone, she seems very happy if she have her knitting or sewing, and will busy herself for hours. She counts with her fingers or spells out names of things which she has recently learnt in the manual alphabet of the deaf-mutes. In this way she seems to think and argue to herself. If she spell a word wrong with the fingers of her right hand, she instantly strikes it with her left, as the teacher does, if right, then she pats herself upon the head, and looks pleased. She looks roguish for a moment and laughs, and then with the right hand strikes the left as if to correct it.

"During the year she has learnt to use the manual alphabet of the deaf mutes with much speed. She spells out the words and sentences which she knows, so fast, that only those accustomed to this language can follow, with the eye, the rapid motions of her fingers. But wonderful as is the rapidity with which she writes her thoughts upon the air, still more so is the ease and accuracy with which she reads the words thus written by another, grasping their hands in hers, and following every movement of their fingers, as letter after letter conveys their meaning to her mind. It is in this way that she converses with her blind play-mates

"During this year, and six months after she had left home, her mother came to visit her, and the scene of their meeting was an interesting one. The mother stood for some time gazing with overflowing eyes upon her unfortunate child, who was playing in the room, not knowing that her mother was by. Presently Laura ran against her, and at once began feeling her hands, examining her dress, and trying to find out who it was. But not succeeding in this, she turned away as from a stranger, and the poor woman could not hide the pang she felt at finding that her beloved child did not know her

"She then gave Laura a string of beads which she used to wear at home, which were recognised by the child at once. With delight she put them round her neck, and made me understand that the string was from her home

"The mother now tried to caress her, but poor Laura repelled her, preferring to be with her school-mates. Another article from home was now given her and she began to look much interested. She examined the stranger much closer, and gave me to understand that she knew the visitor came from Hanover. She even endured her caresses, but would leave her with indiffer-

ence at the slightest signal. The distress of her mother was now painful to behold, for although she was prepared not to be recognised, the coldness of her child to her was too much for woman's nature to bear

"After a while, on the mother taking hold of her again, a vague idea seemed to fit across Laura's mind that this could not be only a stranger. She, therefore, felt her hand very eagerly, while her face grew more and more interested. She became very pale, then suddenly red. Hope struggled in her bosom with doubt. At this moment the mother drew her to her side, and kissed her fondly. At once the truth burst upon her, and all mistrust and anxiety left her face, as, with an expression of exceeding joy, she eagerly nestled to the bosom of her parent, and yielded herself to her fond embraces.

"After this the beads were all unheeded, the play-things offered her were utterly disregarded; her friends, for whom but a moment before she left the stranger, now vainly strove to pull her from her mother, and though she obeyed me when I signalled her to follow me, she did so most unwillingly. She clung close to me, as if bewildered and fearful, and when, after a moment, I took her to her mother, she sprang to her arms, and clung to her with eager joy.

"The parting between them showed the love, the intelligence, and the resolution of the child. Laura went with her mother to the door, clinging close to her all the way until they came to the threshold, where she paused and felt around to ascertain who was near her. Perceiving the matron, of whom she was very fond, she grasped her with one hand, holding on tightly to her mother with the other. She stood thus for a moment, then she dropped her mother's hand, put her handkerchief to her eyes, and turning round clung sobbing to the matron, while her

mother departed with emotions as deep as those of her child

"She has a very gentle and loving disposition. When left alone she amuses herself with her thoughts and finger-language, and seems quite contented. She has a thirst for knowledge, and a quick understanding. It is beautiful to behold her continual gladness, and her sympathy for those around her. She was in due time taught to write. Her hand-writing was clear. She could express all simple ideas in words, uniting nouns with adjectives and verbs so as to be plainly understood. She wrote with a pencil in a grooved line. At first she was puzzled to comprehend what it was she was required to do. But when the idea dawned upon her mind that by means of it she could communicate her thoughts to her mother, her delight was unbounded. She worked at her writing with great patience and zeal, and in a few months wrote a letter to her mother that she was quite well, and that she would come home in ten weeks."

Besides learning to write, Laura was taught to sew and to knit and to make twine bags. Charles Dickens, the novelist, saw her when he visited America, and was struck with her intelligence, contentment, and cheerfulness. In course of time Laura became one of the most skilful teachers in the Asylum for the Blind at Boston.

Helen Keller—is the daughter of cultured and well-to-do parents, and was born in Alabama on June 27, 1880. When about nineteen months old, she was attacked violently with congestion of the stomach, and to the effects of this disease are referred her total loss of sight and hearing. Previously she is said to have been of perfect health, and unusually bright and active. She had learned to walk, and was fast learning to talk. The loss of her senses thus took place about seven months earlier than in

and of
Helen Keller.

the case of Laura Bridgman, though Helen seems to have been as much if not more developed at nineteen months than was the latter at twenty-six months. In both cases a slow recovery was made, and a painful inflammation of the eyes set in. It is recorded of Helen that she "soon ceased to talk, because she had ceased to hear any sound."

"As her strength returned, she gave ample evidence of the soundness of her mental faculties. She learned to distinguish the different members of her family and her friends, by feeling their features, and took an especial interest in the affairs of the household. The little hands were constantly busy in feeling objects and detecting the movements of those about her. She began to imitate these motions, and thus learned to express her wants and meaning by signs, to a remarkable degree. Just before completing her seventh year, a skilful teacher from the Perkins Institute—Miss Sullivan—was engaged for her. At this age Helen is described as a 'bright, active, well-grown girl,' 'quick and graceful in her movements, having fortunately not acquired any of those nervous habits so common among the blind. She has a merry laugh, and is fond of romping with other children. Indeed, she is never sad, but has the gaiety which belongs to her age and temperament. When alone she is restless, and always flits from place to place as if searching for something or some body'. Her sense of touch is developed to an unusual degree, and enables her to recognise her associates upon the slightest contact. Her sense of smell is very acute, enabling her to separate her own clothes from those of others, and her sense of taste is equally sound. In this respect she has an advantage over Laura Bridgman, in whom both these senses were reduced almost to extinction. She speedily learned to be neat and orderly about her person, and correct in

her deportment. The first lesson is an interesting epoch. A doll had been sent Helen from Boston, and when she had made a satisfactory exploration of it, and was sitting quietly holding it, Miss Sullivan took Helen's hand and passed it over the doll, she then made the letters d o l-l in the finger-alphabet while Helen held her hand. 'I began to make the letters a second time. She immediately dropped the doll, and followed the motions of my fingers with one hand, while she repeated the letters with the other. She next tried to spell the word without assistance, though rather awkwardly. She did not give the double l, and so I spelled the word once more, laying stress on the repeated letter. She then spelled 'doll' correctly. This process was repeated with other words, and Helen soon learned six words,—'doll', 'hat', 'mug', 'pin', 'cup', 'ball'. When given one of these objects, she would spell its name, but it was more than a week before she understood that all things were thus identified. In a surprisingly short time Helen completely mastered the notion that objects had names, and that the finger-alphabet opened up to her a rich avenue of knowledge. Everything had to be named, and she seemed to remember difficult combinations of letters, such as 'heliotrope' and 'chrysanthemum', quite as readily and securely as shorter words. In less than two months she learned three hundred words, and in about four months she had acquired six hundred and twenty-five words—a truly remarkable achievement. She still used her gesture signs, but, as her knowledge of words increased, the former fell into disuse. Next verbs were taught her, beginning with such as Helen herself could act, as 'sit', 'stand', 'shut', 'open', &c. Prepositions were similarly mastered. Helen was placed *in* the wardrobe, and the sentence spelled out to her. 'Box is *on* table', 'Mildred is *in* crib',

are sentences which she constructed after little more than a month's instruction. Adjectives were skilfully introduced by an object-lesson upon a large, soft worsted ball and a bullet. Helen felt the difference in size at once. 'Taking the bullet, she made her habitual sign for "small", that is, by pinching a little bit of the skin of one hand. Then she took the other ball, and made her sign for "large" by spreading both hands over it. I substituted the adjectives "large" and "small" for these signs. Then her attention was called to the hardness of the one ball, and the softness of the other, and so she learned "soft," and "hard". A few minutes afterwards she felt her little sister's head, and said to her mother, "Mildred's head is small and hard." Even so arbitrary elements of language as the auxiliary 'will' and the conjunction 'and' were learned before two months of instruction had passed, and on May 1 she formed the sentence, 'Give Helen key, and Helen will open door.'

"From this the step to reading the raised type of the blind was an easy one. 'Incredible as it may seem, she learned all the letters, both capital and small, in one day. Next I turned to the first page of the "Primer," and made her touch the word "cat," spelling it on my fingers at the same time. Instantly she caught the idea, and asked me to find "dog," and many other words. Indeed, she was much displeased because I could not find her name in the book.' She soon added writing to her accomplishments, and carefully formed the letters upon the grooved boards used by the blind. On the 12th of July she wrote her first letter, beginning thus 'Helen will write mother letter papa did give helen medicine mildred will sit in swing mildred will kiss helen teacher did give helen peach,' &c. This well justifies the statement that she acquired more in four months than did Laura Bridgman

in two years Letter-writing is quite a passion with her, and, as she is also able to write by the Braille system, she has the pleasure of being able to read what she has written. Her progress in arithmetic is equally remarkable, going through such exercises as 'fifteen threes make forty-five', &c. As examples of her powers of inference, the following will be of service—she asked her teacher, 'What is Helen made of?' and was answered, 'Flesh and blood and bone.' When asked what her dog was made of, she answered, after a moment's pause, 'Flesh and bone and blood.' When asked the same question about her doll, she was puzzled, but at last answered slowly, 'Straw' That some of her inferences are not equally happy, the following illustrates 'on being told that she was white, and that one of the servants was black, she concluded that all who occupied a similar menial position were of the same hue, and whenever I asked her the colour of a servant, she would say "Black". When asked the colour of some one whose occupation she did not know, she seemed bewildered, and finally said, "Blue" Her memory is remarkably retentive, and her powers of imitation unusually developed. One of her favourite occupations is to dress herself up—a performance which she accomplishes not always with success according to our ideas. Her progress continues, and each letter is a marked improvement upon its predecessors. A letter to Mr. Anagnos contains the following sentences 'My doll nancy is sleeping. She is sick, mildred is well. uncle frank has gone hunting deer We will have venison when he comes home I did ride in wheelbarrow and teacher did push it,' and so on" (*Mind*, 1888, pp. 315-317.)

§ 6 The Individual and His Environment. We have already indicated how mental development in every case is conditioned by several

factors—internal and external. (*Vide Chap. VIII, § 6*) And, as we have explained in the preceding chapters the part played by the internal factor—the fundamental functions and heredity, we shall say a few words here with regard to the external factor. The mental development of an individual is materially affected by his natural and social surroundings. Wider experience, careful study of nature, and scientific experiment impart a more correct knowledge of facts and circumstances than narrow, imperfect, and superficial experience. And not only do the perceptive and representative faculties develop better in this way, but also the higher faculties of thought, feeling, and will make considerable progress when their foundation is comparatively broad and sound. Concepts, judgments, and inferences, can only be valid when the percepts and images on which they rest are clear and correct ; emotions and sentiments, likewise, can be refined and improved only through the due development of thought ; and, similarly, our deliberations and choices can be careful and impartial and our resolutions rational and stable only when the feelings have been refined and thoughts duly controlled.

The relation of the Individual to Society is also very close. The development of the mind is determined, to a great extent, by what comes to us through imitation, tradition, and instruction. Language, as we have seen, is a powerful instrument by means of which the social mind moulds the individual. (*Vide Chap. XII, § 8*) A man cut off from all communication with other persons would have

Mental development is affected by natural and social surroundings.

A proper estimate of nature improves our understanding, refines the emotions, and strengthens the will

Society also powerfully influences the individual through tradition, language, sympathy, and instruction.

his mental growth quite different from ours "A 'man of the woods'", as Dr. Martineau observes, "is not yet 'a man' at all · potentially human, he is not yet actually so" without the social environment his faculties and dispositions are as much incapable of development as a piano placed at the bottom of the sea is incapable of producing music. Thus, a man brought up in a civilized society has a decided advantage in respect of mental advance over one born in a savage community. The educative influence of elders and companions, of institutions and social groups, is great indeed. We are what we are, not simply by our own exertions, but also to a great extent by the influence of society. The influence of society is often silent and subtle, but always very potent. It is often very difficult to shake off the notions of elegance and propriety, the superstitions and prejudices which we imbibe from society. Nay, our very constitution betrays on close examination our vital relation to society our passions and affections, our hopes and fears, our sympathies and antipathies, are often connected with the behaviour and attitude of others. Indeed, the very constitution of Reason—the distinctive attribute of man—reveals community of nature and the unity of the human race. Social fibres, as we have said, throb in our very constitution.

Human
constitution is
essentially
social in
character.

"Man in society is like a flower

Blown in its native bed. 'Tis there alone

His faculties expanded in full bloom

Shine out, there only reach their proper use"

(Cowper)

§ 7. Development of Character. Character (from Gr. *charakter*, a mark cut or engraved) properly implies a peculiarity of mental or moral constitution which distinguishes one individual from another. It is, as it were, a psychical mark which indicates the peculiar bent of his mind as conditioned by habit and natural endowment. The character of an individual is determined partly by his natural abilities and partly by his acquirements, but in either case it depends on the use he makes of his powers and attainments. Even natural abilities may improve or deteriorate according as we uniformly exercise them in the right or in the wrong direction. What goes, therefore, to build up character is the uniform exercise of will in certain directions. One habitually acting in the wrong direction thus acquires a bad character, while one habitually acting in the right direction comes to possess a virtuous character. In this way, an individual sets up a disposition in him to think, feel, or act in certain ways according to the bent of his character. The *Nyaya* aphorism that "Our actions, though apparently disappearing, remain unperceived, and reappear in their effects as tendencies (*pravrittis*)" has, therefore, a significance, even in this life. As we are scrupulous or careless in the estimate and execution of our duties, so do we lay the foundation of a good or a bad character and become disposed afterwards to act in analogous ways under like circumstances. Thus, through culture, an individual becomes acute or dull, sympathetic or selfish, honest or dishonest, virtuous or vicious.

Character in a wide sense indicates merely the bent of the mind, due to the habitual exercise of will in certain directions

The effects of our acts thus persist in our character

Character thus signifies the form which the mental and the moral constitution assume in an individual through his personal exertions.

There is room for character only so long as Reason and Will exercise their wholesome influence on the passions and inclinations.

The natural tendency is to subordinate impulse to reason
Seth's testimony.

ous or sinful We see, then, that character, though growing out of habit, re-acts on it . as character is formed, our habits also become steady and uniform. Character thus comes to stand for the mental and the moral constitution as they are modified by personal efforts "Character," says Stout, "is just the constitution of the Self as a whole. Character exists only in so far as unity and continuity of conscious life exists and manifests itself in systematic consistency of conduct. Animals can scarcely be said to have a character, because their actions flow from disconnected impulse" (*Manual of Psychology*, p 633)

The formation of character is due to the regulative influence of Reason and the strength of Will. Nature has endowed man with certain qualities—cognitive, emotional, and conative—with an adjustment among them, which it is for him either to preserve and promote or to subvert and weaken by a legitimate or illegitimate exercise of his powers. If, overlooking the claims of reason, a man follows the humour of a moment, then he degenerates into a brute. His rational nature and the connected sentiments, however, stand prominently in the way of such degradation, so that it is only with dogged pertinacity and wicked perversity that he can succeed in drowning altogether the glory of his nature Ordinarily an individual is disposed to exercise his powers according to the dictates of reason and thus to set up at least a prudent, if not a virtuous, character Seth writes, "It is in the possibility of transfiguring this natural animal life, and making it the instrument and expression

of spiritual purpose, that morality consists. Morality is the formation, out of this raw material of nature, of a character. The seething and tumultuous life of natural tendency, of appetite and passion, affection and desire, must be reduced to some common human measure. It is only by taking in hand his original nature or disposition, and gathering up its manifold elements into the unity of a consistent character, that man becomes truly man. The way from nature to character is laborious, and full of effort." (*Ethical Principles*, pp 49-50) The word 'character' has thus acquired a specific sense, *viz.*, that of good character, into which the human constitution ordinarily tends to develop under normal conditions. It implies, as Sully says, "A morally disciplined will, including a virtuous condition of the whole mind, that is, the disposition to think and feel (as well as to act) in ways conducive to the ends of morality" (*Outlines of Psychology*, p 440).

Conduct is but the expression of character in a series of outward acts. As character assumes a determinate form, conduct becomes more and more uniform which reveals the character to others. As Alexander says, "Think of a man's conduct in relation to the mental conditions from which it proceeds and you think of his character, think of his character as it produces results beyond these sentiments themselves and you have conduct" (*Moral Order and Progress*, p. 49). The term 'conduct,' no doubt, has, like the term 'character,' been used at times in a very wide and loose sense, so as to

Thus, in a narrow sense, character has come to mean good character.

Conduct is the expression of character in a series of outward acts

Spencer's use
of the term
'conduct'
is not
justifiable

cover all vital activities directed towards certain ends, whether operating consciously or not. Thus, Spencer speaks of the conduct of infusoria and mollusca and describes 'an advance in conduct,' as increased 'adjustment of acts to ends.' (*Vide Elements of Morals*, Chap. XI, § 2.) It may be mentioned, however, that instinctive or spontaneous adjustments cannot with propriety be included in conduct. Conduct implies a system of acts expressive of character, as it is formed by the repeated and uniform exercise of will in certain directions. "It seems best," says Mackenzie, "to confine the term conduct to those acts that are not merely adjusted to ends, but also definitely willed. A person's conduct, then, is the complete system of such acts, corresponding to his character." (*Ethics*, p. 85.) Man, as endowed with reason and will, has to achieve for himself what may be secured to the lower animals merely by the drift of nature. And this achievement, when becoming a definite and dominant tendency, constitutes character and issues in conduct.

The distinctive feature of man lies in his character

From the above account it is clear that character and conduct are marked by consistency and rationality. In fact, there is consistency owing to rationality, owing to the regulation of the desires and inclinations according to the dictates of reason. As, therefore our life comes more and more under the influence of rational impulses, it acquires the capacity of successfully resisting the lower propensities and of uniformly acting in the direction of virtue and wisdom. When the rational impulses

Character and conduct are marked by consistency and rationality

The development of character illustrates the increasing influence of the rational uses, the form

are of an inferior rank (as in the case of an economist of pleasure), a low type of character develops, such as is illustrated in the life of a Heliogabalus or a Nero , and when such impulses are of an elevated type, they give rise to an exalted character, such as is illustrated in the life of a Rama-chandra or a Yudhisthira, a John the Good or an Empress Victoria, a Garibaldi or a Gladstone. We should remember, however, that in the case of an inferior character, consistency is not so much possible as in the case of an elevated one. An individual can never be thoroughly consistent in his wickedness, however much he may try to be so , but one moved by pure regard for good is always consistent in his conduct Strict consistency, the strongest force in the world, is thus the privilege of the virtuous. Virtuous character is the noblest thing on earth which brings health and strength, peace and happiness, prosperity and progress to individuals and nations.

In the development of character we are aided by society to a very great extent. Examples and precepts, directions and prohibitions, approbation and disapprobation, rewards and punishments effectually regulate the conduct and, through it, the character of individuals. In the formation of character personal effort is, no doubt, an indispensable factor , but it is often roused into activity by social influence Improvement of character implies increased subordination of the lower to the higher springs of action, the growing strength of motive ideas and permanent ends of life as dis-

of character
is determined
by the quality
of such
impulses.

Virtuous
character
alone is
marked by
strict
consistency
and sufficient
strength.

The influence
of society
on the
development
of character
is very great.

Development
of character
implies the
growing
strength of
motive ideas

and permanent ends

Though formed character renders acts to a great extent habitual, yet it leaves room for reflection to meet the requirements of new cases

An ideal character combines promptitude with wariness

A science of mind presupposes a common mental constitution,

tinguished from the passing dispositions and inclinations.* When character is formed, an individual is led habitually to act according to certain fixed principles. This may be described as character manifesting itself in the shape of organised habit. Similar circumstances would dispose an individual to act similarly on all occasions. But new circumstances are often presented affording an occasion for reflection, even to a man of fixed character. When, so to speak, 'conflicting duties' arise, even a man of formed character has to pause and reflect before deciding any course of action. The ideal of a wise and good character must combine, therefore, promptitude, when circumstances are familiar, with wariness when circumstances are difficult and new. In spite of the widening sphere of habit with the increase of years, much room is left to a man of character for reflection and careful decision. He is generally influenced by the maxim —

"When any great design thou dost intend,
Think on the means, the manner, and the end "

(Denham)

§ 8 Varieties of Mind The above exposition of the conditions and principles of our mental life proceeds on the assumption of a common mental constitution present in all individuals

* The term 'habitude' stands for a virtuous tendency or a disposition to act according to a fixed principle of action. When conduct, therefore, comes under the regulation of motive ideas or general principles, we have what is called 'habitude'. It is to be distinguished from 'habit' — the former involves 'reflection' and 'conscious selection based on a general principle of action', while the latter is rather mechanical, performed in a sub conscious and uniform way, when suitable occasion arises.

And this is, no doubt, involved in the very conception of a *science* of mind. But we should not overlook the fact that, in spite of the fundamental identity of mental constitution, there are peculiarities noticeable in nations and individuals in respect of almost all the mental functions and tendencies. Thus, nations and individuals are found who are perhaps more sentimental than practical, or more religious than worldly. There are infinite grades of difference in the mental constitution of individuals from the extreme of imbecility to the extreme of genius. Between these two extremes there are great variations with regard to this or that particular faculty, function, or tendency. These variations are, no doubt, connected with peculiarities of nervous structure, central or peripheral. But, in addition to such original differences in psycho-physical constitution, there are differences also in the environment. Even if we ignore differences of climate, locality, society, *etc.*, we find that the members of the same family are not always exposed to the same circumstances. Even twins have not exactly the same experience always. Thus, when (1) differences of original endowment are combined with (2) differences of experience, there arise various types of character noticeable among individuals. To study and explain these individual peculiarities is evidently beyond the scope of psychology as a science. It may be attempted by a student of psychology with the help of the laws and principles that he has gathered from the science. Difficulties are, no doubt, presented here

though there
are
peculiarities,
individual and
national

Variations in
original
endowment
and personal
experience
give rise to
different types
of character

when one has to study another's mind , but careful observation may succeed in penetrating the veil of guile and simulation, if any, and impartial analysis and correct application of principles may lead to valid results. One may thus say that

“Though looks and words,
By the strong mastery of his practised will,
Are overruled, the mounting blood betrays
An impulse in its secret spring, too deep
For his control ”

(Southey)

Modes of measuring individual differences

We may mention in this connection the methods which have been employed to measure differences in individual constitution (1) Qualitative differences may easily be determined by the unlikeness of stimuli or circumstances which give rise to them. (2) Quantitative differences in respect of a particular exercise may be determined in either of two ways —(a) Equal stimuli may be presented to different individuals, and differences in the mental effect may be noted , or (b) unequal stimuli may be presented and varied in quantity with a view to determine the difference required to produce the same mental effect. Thus, (a) two lights may at the same time be presented to two persons and they may be asked to describe their mental effects ; or (b) the intensity of a light may be gradually increased or decreased with a view to determine the difference in increment or decrement necessary to produce the same mental effect in the two persons. Similarly, (a) a place visited at the same time by two individuals may be mentioned to them,

and they may be asked to recount the facts or incidents suggested by it. The fuller the revival, the better is the memory. Or, (b) we may suggest one after another the associated facts or incidents and try to determine the number required to revive the idea of the place in each case. We then conclude that the fewer the suggestive factors helping revival, the better the memory. Of these two methods the former, estimating difference by reference to mental effect, yields only an approximate result ; while the latter, estimating difference by reference to objective circumstances or stimuli, yields a comparatively accurate result. It should, however, be remembered in this connection that this measurement of psychical difference is always a specially difficult task. We must always satisfy ourselves that the circumstances are exactly alike in the cases compared, so that our inferences may not be vitiated by disturbing factors. The study and measurement of mental phenomena conducted in this way would, however, give the student not only practical advantage but also peculiar delight connected with the research.

We have thus brought our meagre study of mind—the noblest product of God's creation—to a close. A proper study of it, prepares the way for its due cultivation, which secures virtue, peace, and contentment.

“The mind is its own place, and in itself
Can make a heav'n of hell, a hell of heav'n.”

(*Milton*)

In employing the methods we must satisfy ourselves that the conditions of mental exercise are exactly alike in the cases examined

Due cultivation of mind is the source of peace and happiness.

§ 9 Exercises

- 1 Show the importance, both theoretic and practical, of the conception of the unity of mind
- 2 Determine the character and conditions of Belief. How is it related to Knowledge?
- 3 To what extent is Belief under the control of the Will? What is the relation of Belief to Action? Illustrate your answer
- 4 Exhibit the nature and operation of (a) Habit and (b) Character, discussing whether, and how far, the volitional factor enters into their formation
- 5 Give a psychological definition of the sphere of Conation, Volition, or Will. How is it related (a) to Feeling and (b) to Morality?
- 6 Is a catalogue of 'Springs of Action' (a) psychologically possible, (b) ethically useful?
- 7 State the relation of Judgment and Belief, and of Belief and Activity
- 8 Give a careful psychological analysis of Belief in Testimony.
- 9 Discuss the proper place of Belief in a systematic account of mental phenomena
- 10 Point out some of the ambiguities of the term Belief, as employed in Philosophy and in Psychology. Is Belief distinct from Knowledge, or merely one aspect of it?
- 11 Distinguish the psychological from the logical aspect of Belief. What psychological explanation can be given of the origin of ghost stories?
- 12 Investigate the state of mind called Belief. Compare the condition of mind (a) of one who is certain about a thing, (b) of one whose judgment is balanced with respect to it, and (c) of one who thinks there is no evidence for or against it
- 13 Denote and explain the action of the Emotions in Belief. Are we equally disposed to expect what answers to our wishes, and what answers to our fears?

14 What do you understand by the Character of a man? What are the psychological and moral grounds of the value attaching to a good character or reputation?

15 Can what a man *is* be separated from what he *does*?

16 Under what circumstances may a man, who has once given way to temptation, be said (*a*) to be more likely or (*b*) to be less likely, to commit the same offence a second time?

17 Enumerate the chief differences of mind and character between savages and the most civilized men. How do you account for the differences you find?

18 Determine the relation of the Individual to Society, and show how it affects individual and social progress.

19 Illustrate by concrete examples to what extent mental development is retarded by defects of sense-endowment

20. What light do the abnormal psychical phenomena throw on the normal operations of the mind?

21. Estimate the causes of individual variation. How may such variations be measured?

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“I have derived much pleasure from reading your *Principles of Logic*, particularly the volume on Induction. I think that your volumes will be of great use to the students of the University of Calcutta, as you seem to have dealt with the subject of Logic in accordance with the outlines laid down in the Calendar. They would, I should think, be valued also by independent inquirers.”

Sir Pratul Chandra Chatterjee Kt., C.I.E., M.A., D.L.,
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PART I — "Your book seems to be an excellent one well suited for the capacities of Indian students"

The Bengalee, Calcutta, writes —

PART I — "Professor Mitra has lucidly explained in this book the rules and principles of Deductive Logic, always illustrating them by appropriate examples. In the Introduction he has explained the fundamental notions of Logical Science and the first principles of both Deduction and Induction. All the chapters are well written, and those on "Immediate Inference" and "Syllogism" are specially clear and comprehensive. The author has given an interesting account of the "Dilemma", which is illustrated by concrete examples. The marginal notes and hints for working out exercises will be very useful to examinees, and the numerous exercises given at the ends of chapters will enable students to apply the rules and principles to concrete cases. The get up of the book is excellent. We recommend the book to our young readers."

The Indian Education, Bombay, writes —

PART I — "This deals with ordinary Formal Logic and appears to be written in a clear and sensible manner"

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The Indian Daily News, Calcutta, writes —

PART I — "The aim of the author in this publication is, by judicious selection of matter, to assist the beginner in grasping the main principles of logical science. As a practical teacher, the author is familiar with the difficulties of young students preparing for the Intermediate Examination in Arts, and his endeavour has accordingly been to adapt his book to their requirements. This is done by a discussion of principles illustrated by examples. Problems are set for solution and hints for working out exercises are given. The author deserves to be congratulated on his very creditable performance"

The Hindustan Review, Allahabad, writes —

PART I — "The author is an experienced and capable teacher and his work is an excellent text-book of the subject"

The Century Review writes —

"Professor Mitra may be said to be at least one of the first men in India who have had a thorough insight into the capacities and needs of Indian students of Logic. Both his books on Deductive Logic and Inductive Logic are prepared for meeting the peculiar needs and difficulties of the young Indian students of Logic, and it is pleasing to add that his books will be of no less value even to non-Indian students.

The arrangement of the different subjects that fall under Deductive Logic is excellent, and the treatment of these subjects is very lucid and simple so that any student who carefully follows the author may be confident of being free from falling into confusion, which is generally the chief fault of the beginner. In particular the exercises and the hints for working out exercises are so good, as to enable the student to be acquainted with the difficulties peculiar to Deductive Logic and also with the easy methods of solving these difficulties.

The Inductive part of the work is as good as the Deductive portion. The chapter dealing with the various grounds of Induction is specially good. The classification of fallacies is an excellent one and the number of fallacies mentioned is exhaustive. The chapter dealing with the sources of fallacies is very interesting and serves as a good stimulus to students who desire to study psychology as well. We have no hesitation in recommending this book to the attention of all our readers. Its originality of treatment and width of outlook ought to add to its popularity."
